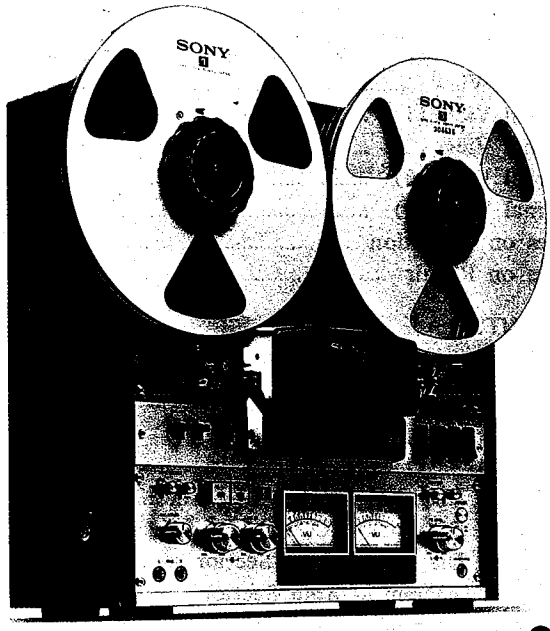
TC-756/TC-756-2

USA Model

AEP Model
UK Model
USA Model



STEREO TAPECORDER

SPECIFICATIONS

Power Requirements: AC 120 V, 60 Hz, 100 W (USA)
AC 110, 127, 220 or 240 V, 50/60 Hz, 110 W (AEP, UK)

Track System: TC-756: 4-track 2-channel stereo
TC-756-2: 2-track 2-channel stereo

Reels: 270 mm (10½ inches) or smaller

Tape Speed: 19 cm/s (7½ ips), 38 cm/s (15 ips)

Recording Time: With 1,100 m (3360 ft.) tape of 270 mm (10½ inch) reel
TC-756: 3-hours stereo recording at 19 cm/s (7½ ips)
TC-756-2: 1.5-hours stereo recording at 19 cm/s (7½ ips)

Frequency Response: (with SONY SLH tape)
20~35,000 Hz at 38 cm/s (15 ips)
30~30,000 Hz ±3 dB at 38 cm/s (15 ips)
20~30,000 Hz at 19 cm/s (7½ ips)
30~25,000 Hz ±3 dB at 19 cm/s (7½ ips)

Signal-to-Noise Ratio: TC-756: 56 dB (Sony SLH tape)
53 dB (standard tape)
TC-756-2: 59 dB (Sony SLH tape)
56 dB (standard tape)

Wow and Flutter: 0.04 % (RMS) weighted at 38 cm/s (15 ips)
0.06 % (RMS) weighted at 19 cm/s (7½ ips)

Overall Distortion: 1.2 %

Record Bias Frequency: Approximately 160 kHz

Inputs: MIC (2)
Impedance: low
Maximum sensitivity: –72 dB (0.19 mV)
LINE IN (2)
Impedance: 100 kΩ
Maximum sensitivity: –22 dB (60 mV)

Outputs: LINE OUT (2)
Impedance: 100 kΩ
Level: –5 dB (0.44 V) with 100 kΩ load
HEADPHONE
Impedance: 8 Ω

REC/PB Connector (AEP, UK): Input impedance: 3.9 kΩ
Output impedance: 8.2 kΩ

AC Outlet (USA): Unswitched, 300 W maximum

Heads:

	TC-756	TC-756-2
Record	RF140-2902	RF142-2202A
Playback	PF142-4202	PF142-2202A
Erase	EF18-2902A2	EF85-2202

Motors: Capstan: IC-624G (AC servo controlled)
Reel IC-638R (2)

Semiconductors: 1 IC, 2 FETs, 58 transistors, 46 diodes

Dimensions: 435 (w) x 451 (h) x 221 (d) mm
17⅛ (w) x 17¾ (h) x 8¾ (d) inches

Weight: 24 kg, 52 lb 14 oz

SONY®
SERVICE MANUAL

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When ordering replacement parts, use PART NUMBERS listed in Parts Lists or shown in EXPLODED VIEWS.
Parts List reference numbers should not be used.

MODEL IDENTIFICATION

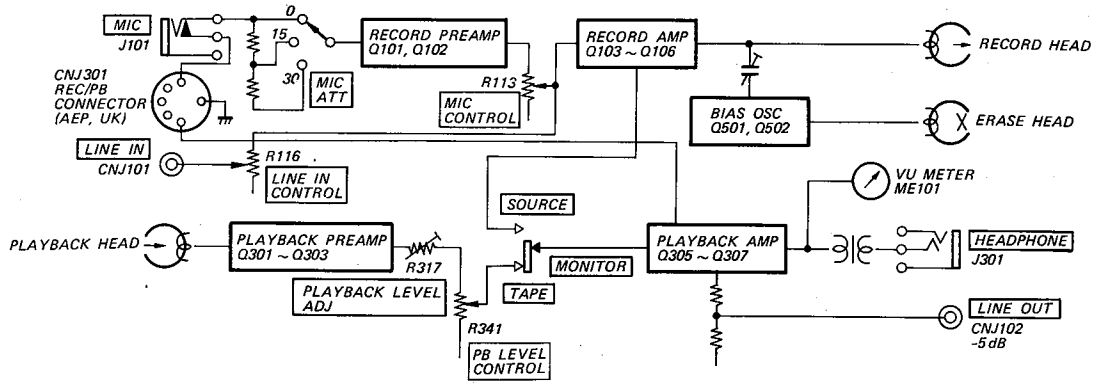
(See specification label.)

Model	*Identification on specification label*
USA	AC 120V 60 Hz 100W SUPERSCOPE
AEP, UK	110, 127, 220, 240V ~ 50/60 Hz 110W

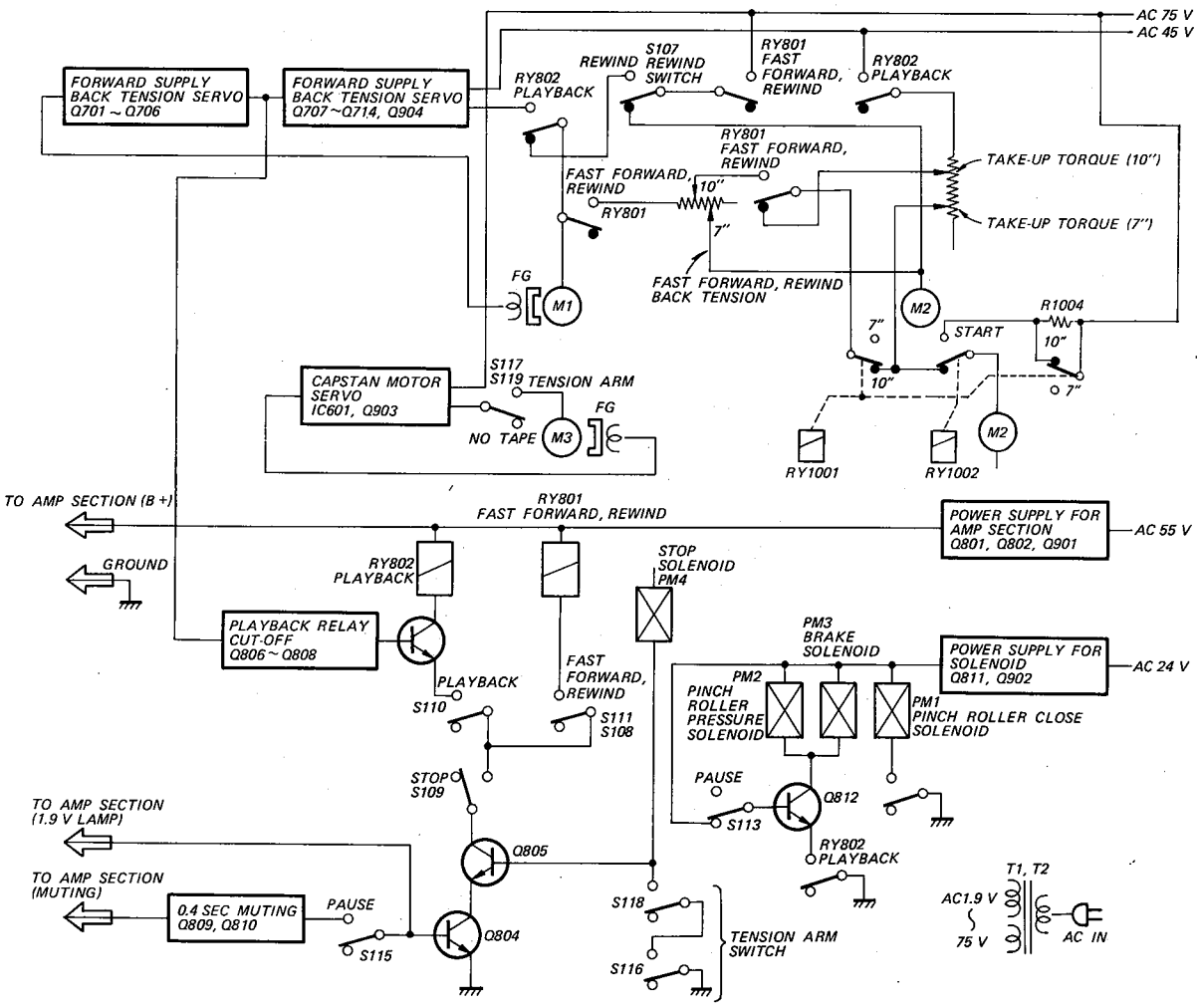
SECTION 1
DIAGRAMS

1-1. BLOCK DIAGRAMS

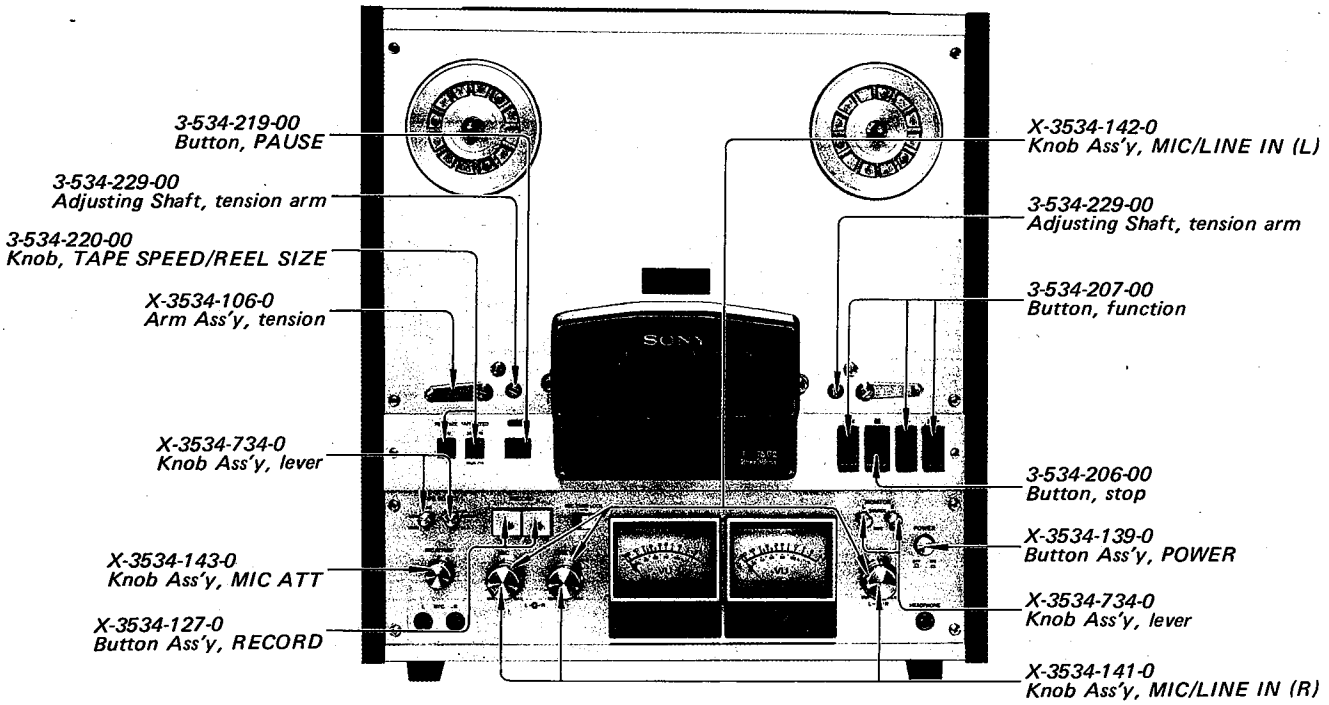
Amp Section



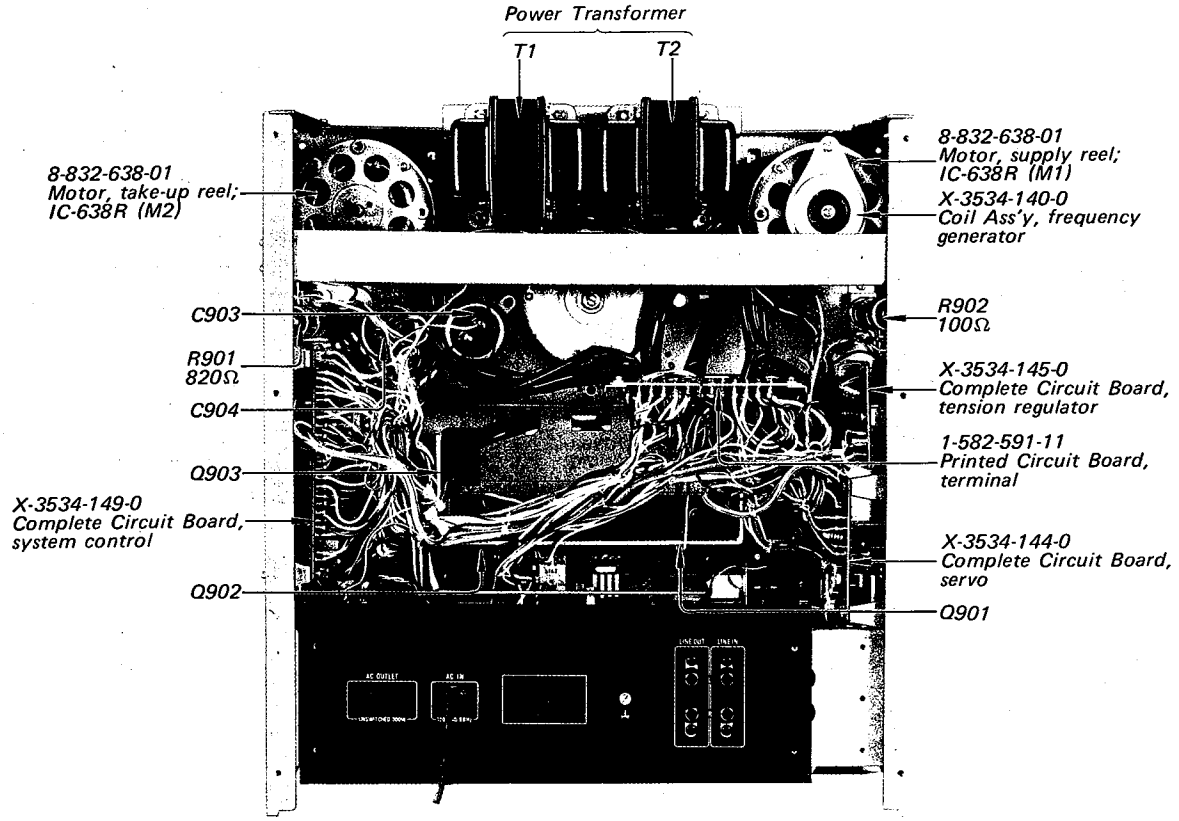
System Control Section



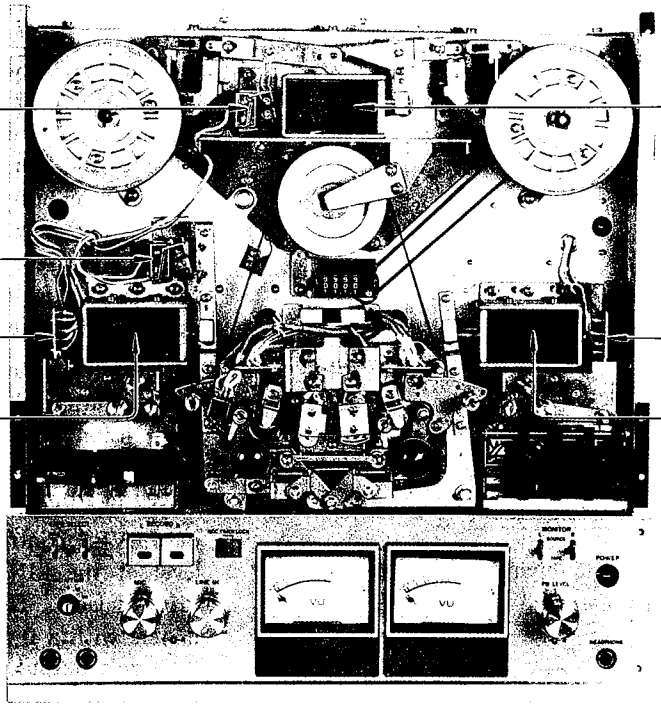
1-2. EXTERNAL VIEW



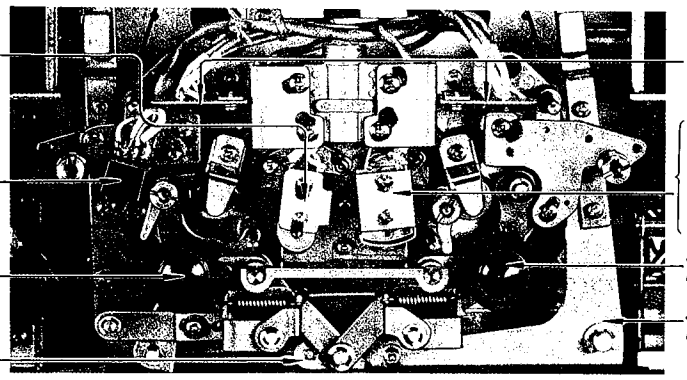
1-3. INTERNAL VIEW (1)



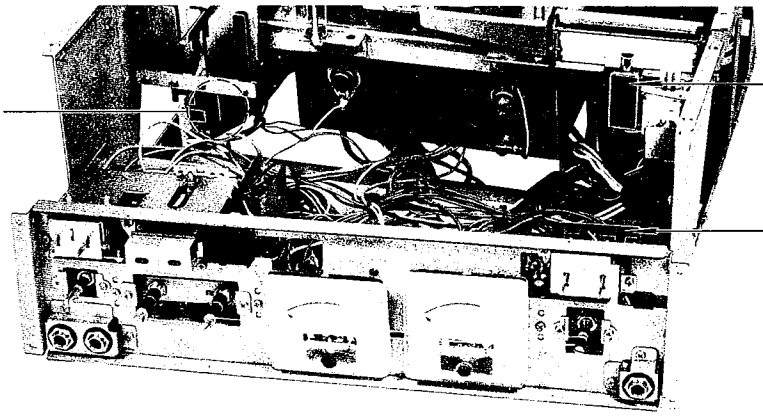
1-4. INTERNAL VIEW (2)



1-5. INTERNAL VIEW (3)

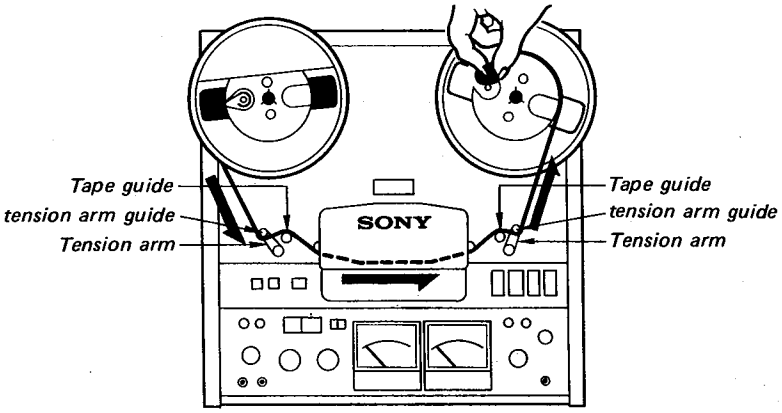


1-6. INTERNAL VIEW (4)



1-7. NOTES ON OPERATION

1. For 270 mm (10½ inch) metal reel, use a reel spacer and a Sony Reel Adaptor RAD-10.
2. Thread a tape as illustrated. Be sure to pass the tape under the tension-arm guides, and above the tape guides.



3. For protection against the high bias voltage the upper head cover is fastened with the two head cover bosses.
4. Set the BIAS and EQ (TAPE SELECT) switches according to the tape used.

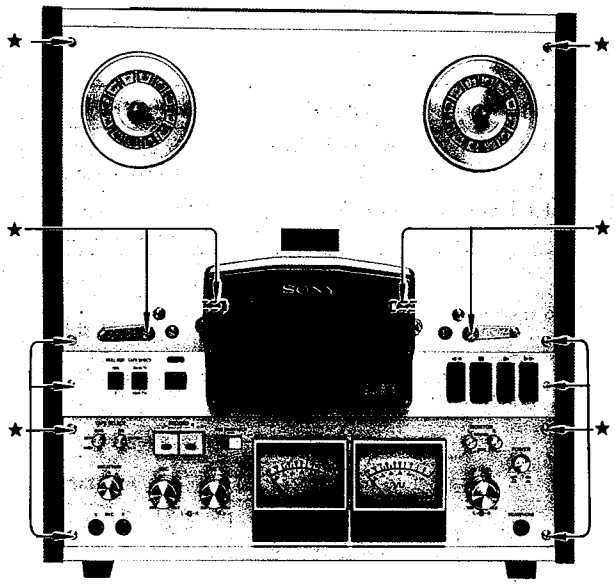
BIAS switch	EQ switch	Tapes
LOW	NORMAL	SONY SUPER 150, SUPER A TDK 150 SCOTCH 150 Other 150 type tapes
LOW	SPECIAL	SONY SLH MAXELL LNE 35 AGFA PE 35 BASF LP 35, 35LH
HIGH	NORMAL	SCOTCH 203, 206 TDK SD 150
HIGH	SPECIAL	When using some tapes, frequency response range may be wide but distortion level may be high.

5. Do not leave the TC-756-2 in PAUSE mode for a long time, since the normal rated voltages are still applied to the reel motors in PAUSE mode. Place the TC-756-2 in stop mode instead.
6. REC TIMER LOCK button can be moved to the right only when L and/or R RECORD buttons are pushed in stop mode. Once the RECORD buttons are locked, they cannot be released and remain illuminated even though any function button (stop, fast forward, rewind or forward button) is pushed. The TC-756-2 can be placed in record mode only by pushing the forward button, but not by pushing the stop, fast forward or rewind button.
7. Before setting the timer-activated recording, be sure to turn POWER switch OFF. Otherwise the tension arms may be turned OFF by the momentary tape slack and the TC-756-2 may be placed in stop mode.
8. PB LEVEL controls adjust the playback signal level at the LINE OUTputs and the HEADPHONE jack. This adjustment reflects on VU meters with a 0 VU reading corresponding to 0.43 volt output. During normal use, set the inner knob (R channel) to the center click position and align the outer knob (L channel) with the inner knob.
9. The TC-756-2 is designed only for vertical use, and therefore no rubber feet are provided for horizontal use.
10. All function buttons except the stop button have self lock mechanisms.

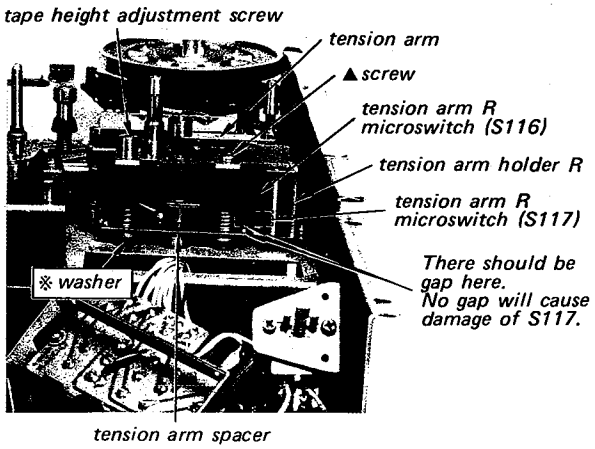
Note: The above description is applied to both TC-756 and TC-756-2.

1-8. NOTES ON REPAIR

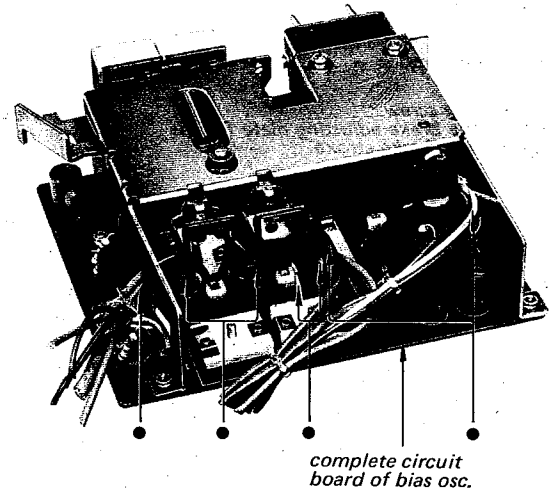
1. Disassembly
   To remove the reel panel, unscrew the 14 screws indicated by ★ in the photo below. To remove the cabinet, unscrew the 10 screws attached to the cabinet (4 screws on both sides and 6 screws on the back).



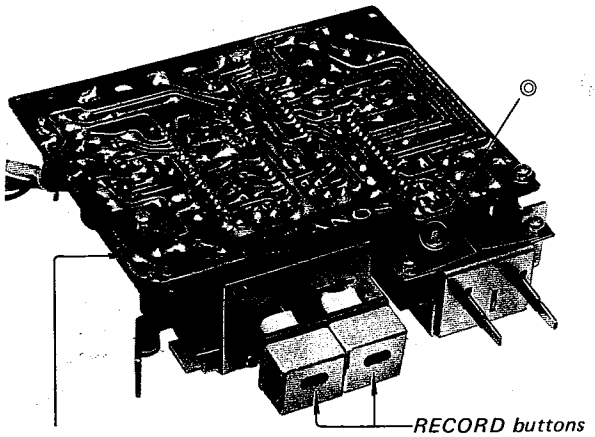
When turning the tape height adjustment screw, the following precaution must be taken: After the screw is turned clockwise as far as it will go, it must not be turned counterclockwise more than 3½ turns. The tape height may be adjusted with this screw within these limits. If the screw is turned beyond these limits, the washer indicated by ※ will be damaged. (See photo.)
The screw indicated by ▲ has been adjusted at the factory and should not be turned. If, however, it happens to be turned, care must be taken that the microswitch (S117) is not touched by the tension arm spacer even if the tape height adjustment screw is turned within the limits mentioned above. Otherwise S117 will be damaged.


tape height adjustment screw
tension arm
▲screw
tension arm R microswitch (S116)
tension arm holder R
tension arm R microswitch (S117)
※ washer
There should be gap here. No gap will cause damage of S117.
tension arm spacer

3. Lead wires for the complete circuit board of the bias oscillator should be arranged through the areas and between the parts indicated by ● as shown in the photo.
   Also, make sure that the lead wires and other parts do not interfere with the ranges within which the switches operate.



4. Be sure to insert the function spring projection (indicated by ◎) into the lever of the EQ (TAPE SELECT) switch as shown in the photo.



complete circuit board of bias osc.

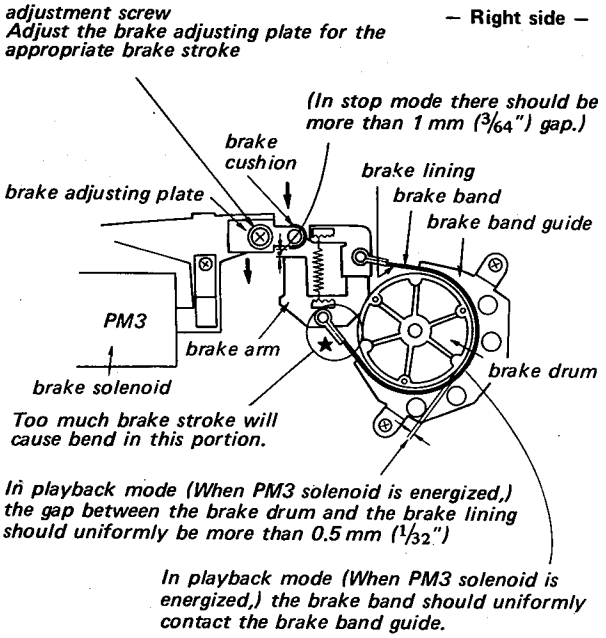
SECTION 2
ADJUSTMENTS

2-1. MECHANICAL ADJUSTMENTS

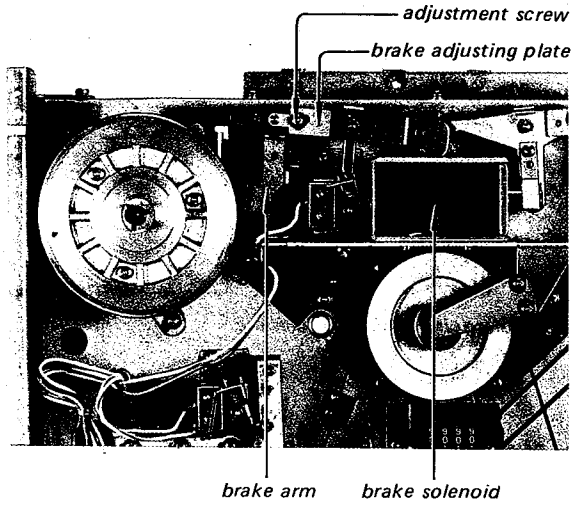
1. Brake Adjustment (1)

Perform this adjustment for both left and right brakes. After the adjustment, apply locking compound to the adjusted screw.

– Playback mode –


adjustment screw
Adjust the brake adjusting plate for the appropriate brake stroke
– Right side –
(In stop mode there should be more than 1 mm (3/64") gap.)
brake cushion
brake lining
brake band
brake band guide
brake adjusting plate
PM3
brake arm
brake solenoid
brake drum
Too much brake stroke will cause bend in this portion.
In playback mode (When PM3 solenoid is energized,) the gap between the brake drum and the brake lining should uniformly be more than 0.5 mm (1/32")
In playback mode (When PM3 solenoid is energized,) the brake band should uniformly contact the brake band guide.

– Left side –



2. Brake Adjustment (2)

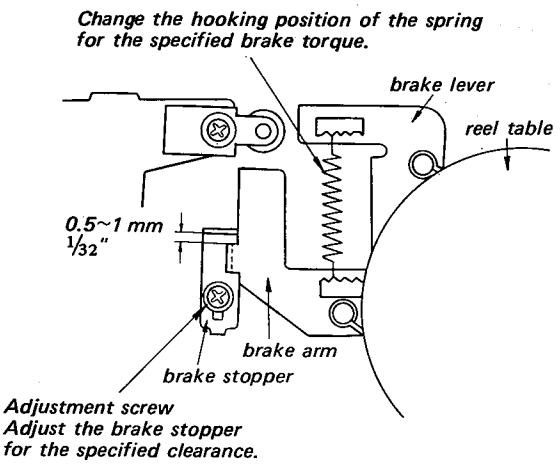
Perform this adjustment for both left and right brakes. After the adjustment, apply locking compound to the adjusted screw.

Specification:

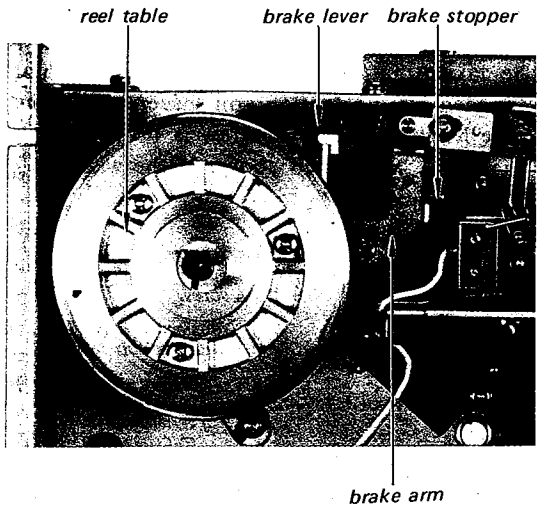
Take-up Reel	Supply Reel	Brake Torque
clockwise	counterclockwise	800~2,500 g·cm (11.1~34.8 oz·inch)
counterclockwise	clockwise	600~700 g·cm (8.3~9.7 oz·inch)

– Stop mode –

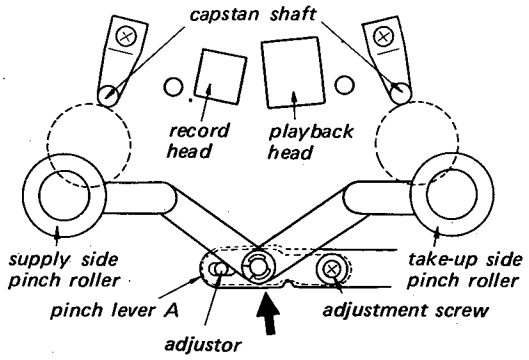
– Right side –



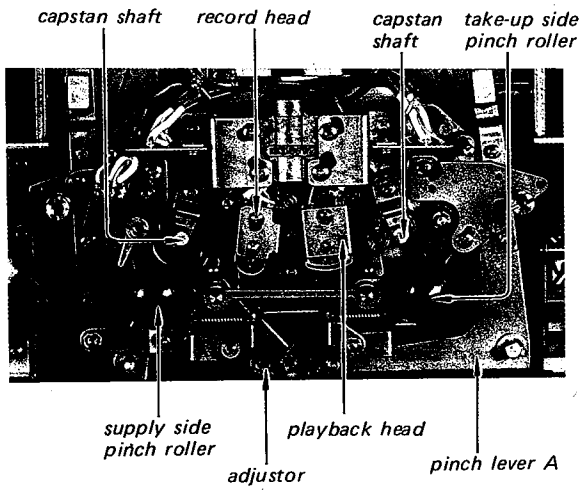
– Left side –



3. Adjustor Adjustment

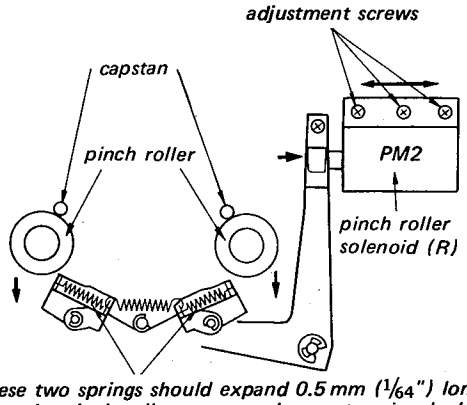


In playback mode and with PAUSE switch to ON, slowly push the pinch lever A in the direction shown by the arrow. When the supply side pinch roller contacts the capstan shaft and starts to rotate, the gap between the take-up side pinch roller and the capstan shaft should be less than 0.5 mm (1/64"), so that the take-up side pinch roller starts rotating slightly after or almost simultaneously with the start of the supply side pinch roller, if necessary, adjust the adjustor.



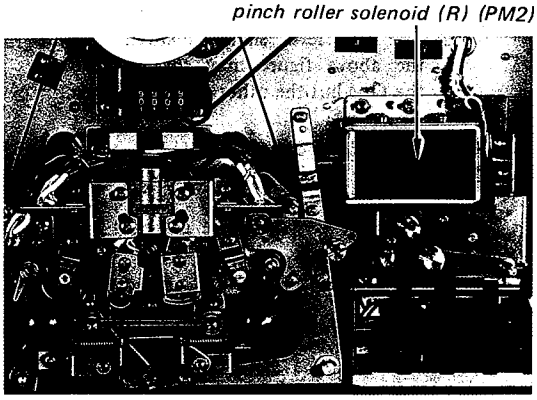
4. Pinch Roller Solenoid (R) (PM2) Position Adjustment

After the adjustment, apply locking compound to the adjusted screws.



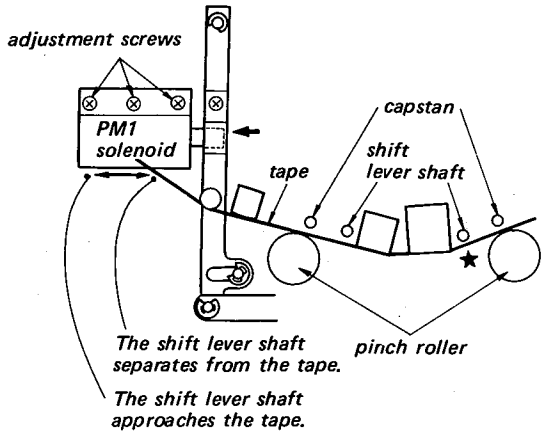
These two springs should expand 0.5 mm (1/64") longer after the pinch rollers contact the capstans in playback mode. If necessary, adjust the PM2 solenoid position.

Specification for your reference:
Pinch roller pressure: 1000 g ~ 1600 g (2 lb 3 oz ~ 3 lb 8 oz)



5. Pinch Roller Solenoid (L) (PM1) Position Adjustment

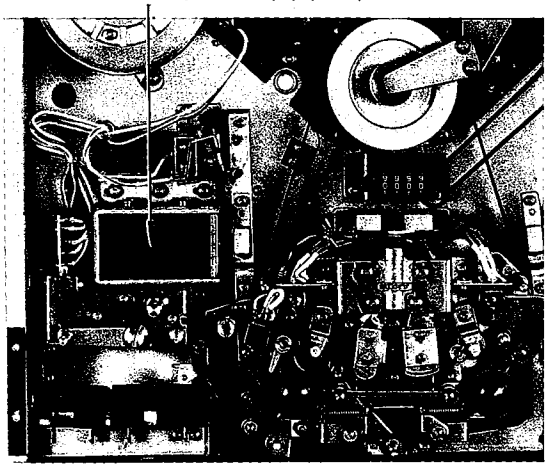
After the adjustment, apply locking compound to the adjusted screws.



With a tape threaded along the tape path and in playback mode (PM1 solenoid should be energized), turn PAUSE switch ON. At this time the shift lever shafts should not contact the tape and the pinch rollers should separate from the capstans. If necessary, adjust the PM1 solenoid position.

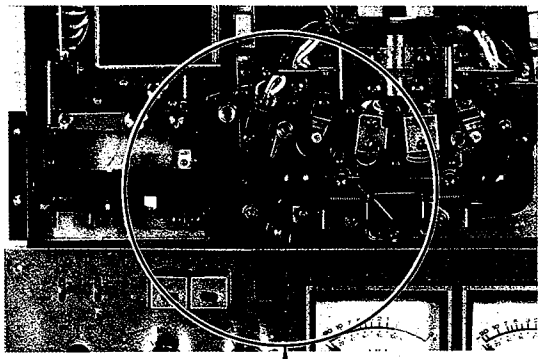
Note: The shift lever shaft indicated by ★ in the above figure may slightly contact the tape but the other one should not.

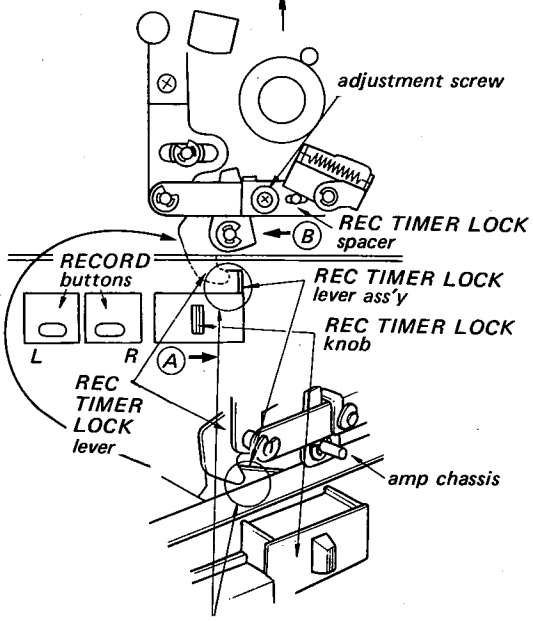
Pinch Roller Solenoid (L) (PM1)



6. RECORD Button Lock Adjustment

After the adjustment, apply locking compound to the adjusted screw.





Push L and R RECORD buttons, move REC TIMER LOCK knob in the direction shown by arrow A and then push the 'forward' button.
At this time REC TIMER LOCK lever should slightly contact REC TIMER LOCK lever ass'y as shown.
If necessary, adjust the REC TIME LOCK spacer.

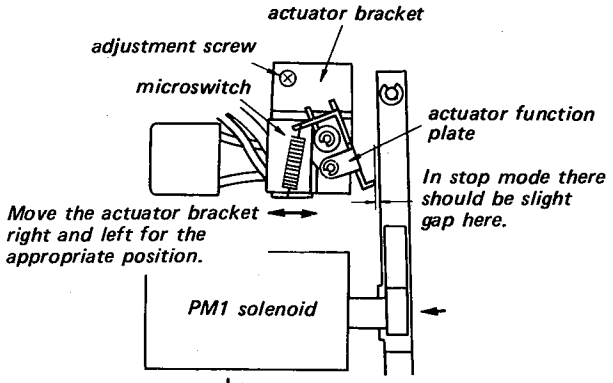
Note:

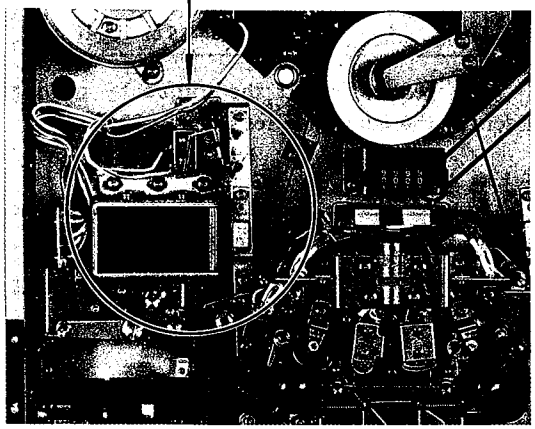
After the adjustment, and with the L and R RECORD buttons pushed and the REC TIMER LOCK knob pushed in the direction shown by arrow Ⓐ , and also the forward button pushed, make sure of the following functions.

1. RECORD buttons cannot be released by releasing REC TIMER LOCK knob.
2. REC TIMER LOCK knob cannot be released by moving the REC TIMER LOCK knob further in the direction shown by the arrow Ⓐ .
3. Push L and R RECORD buttons and then push forward button. At this time the RECORD buttons should not be released.
4. In stop mode L and R RECORD buttons should be released.
5. When L and R RECORD buttons are released, REC TIMER LOCK knob cannot be moved in the direction shown by the arrow Ⓐ .

7. Actuator Adjustment (1)

Perform this adjustment after the Pinch Roller Solenoid (L) (PM1) Position Adjustment. After the adjustment, apply locking compound to the adjusted screw.

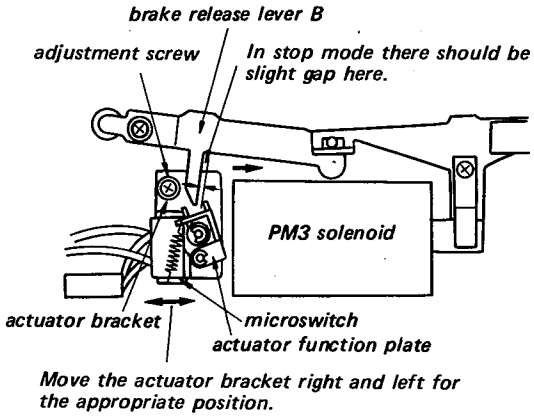

actuator bracket
adjustment screw
microswitch
actuator function plate
In stop mode there should be slight gap here.
Move the actuator bracket right and left for the appropriate position.
PM1 solenoid

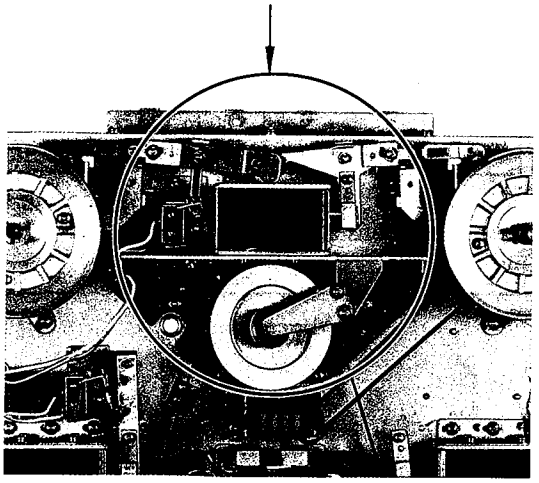


Note: The microswitch should turn OFF (click) in 0.5 to 2 seconds after forward button is pushed.

8. Actuator Adjustment (2)

Perform this adjustment after the Brake Adjustments (1) and (2). After the adjustment, apply locking compound to the adjusted screw.


brake release lever B
adjustment screw
In stop mode there should be slight gap here.
PM3 solenoid
actuator bracket
microswitch
actuator function plate
Move the actuator bracket right and left for the appropriate position.



Note: The microswitch should turn OFF (click) in 0.5 to 2 seconds after forward button is pushed.

9. Fast Forward and Rewind Back-Tension Adjustment

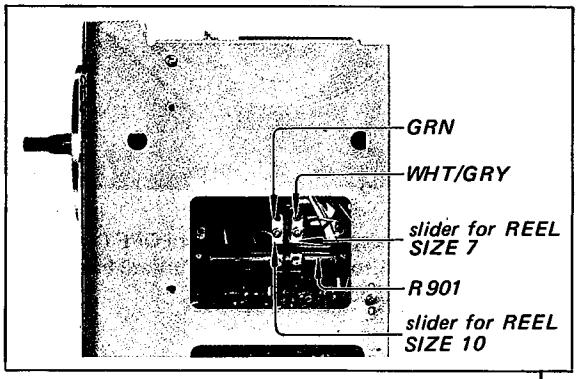
1. Supply the rated power voltage.
2. Fasten the tension arms with rubber bands as shown, thus activating them.
3. Pull the spring scale at a speed of between 9.5 cm/s to 19 cm/s in the direction shown by the arrow for rewind or fast forward mode with REEL SIZE switch at "7" and "10". Measure the back tension torque for rewind and fast forward modes. Torques should be as shown in the following table.

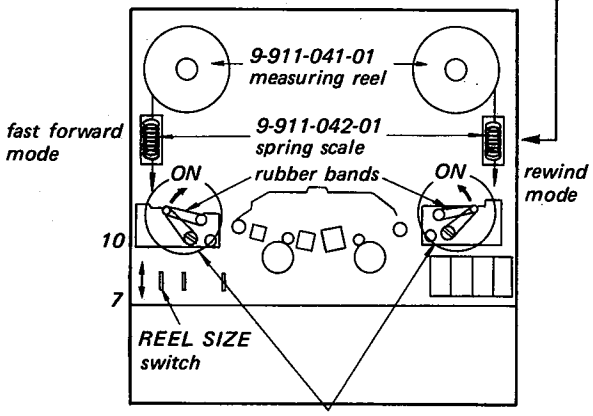
Specification:

Mode	REEL SIZE Switch	Back-Tension Torque
rewind	10	110 to 140 g · cm (1.53 to 1.95 oz · inch)
	7	80 to 100 g · cm (1.11 to 1.39 oz · inch)
fast forward	10	110 to 140 g · cm (1.53 to 1.95 oz · inch)
	7	80 to 100 g · cm (1.11 to 1.39 oz · inch)

If necessary, adjust the torque by moving the sliders of the adjustable resistor (R901).

– Right side –





Fasten the tension arms with rubber bands to operate the unit.

10. Playback Take-up Torque Adjustment

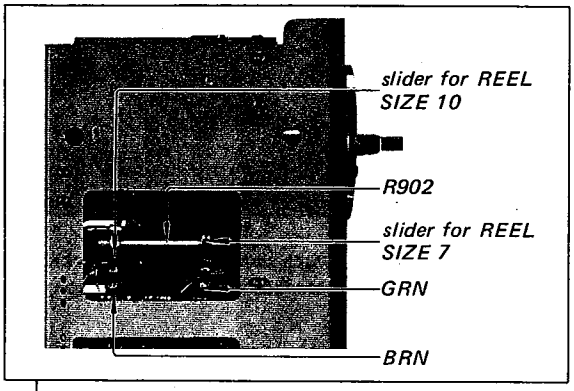
1. Supply the rated power voltage.
2. Fasten the tension arms with rubber bands as shown, thus activating them.
3. Turn the TAPE SPEED switch to "19 cm 7½."
4. Place the unit in playback mode.
5. Pull the spring scale in the direction shown by the arrow and measure the take-up torque with REEL SIZE switch at "10" and "7". Torques should be as shown in the following table.

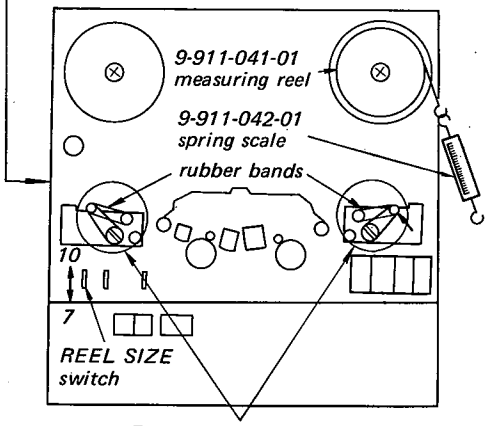
Specification:

REEL SIZE switch	Take-up Torque
10	580 to 620 g · cm (80.5 to 86.1 oz · inch)
7	280 to 320 g · cm (38.9 to 44.5 oz · inch)

If necessary, adjust the torque by moving the sliders of the adjustable resistor (R902).

– Left side –



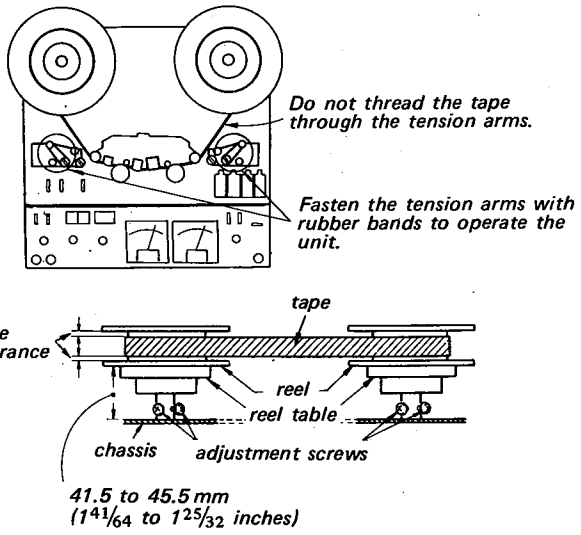


Fasten the tension arms with rubber bands to operate the unit.

11. Reel Table Height Adjustment

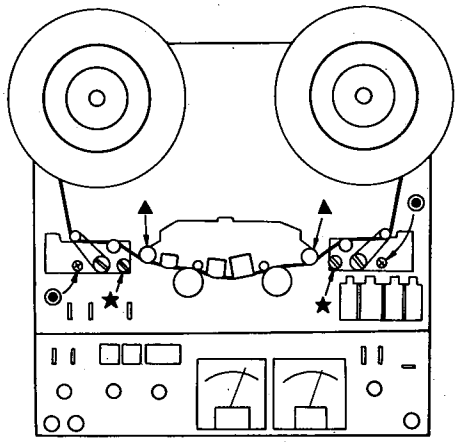
After the adjustment, apply locking compound to the adjusted screws.

1. Thread the tape from a 180 mm (7 inches) plastic reel as shown.
2. Fasten the tension arms with rubber bands as shown.
3. Adjust the reel table height so that the tape travels in the center of both reel flanges in fast forward and rewind modes.



12. Tape Guides Adjustment (1)

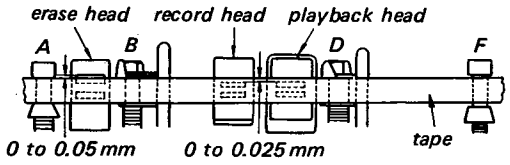
1. Thread the tape from a 180 mm (7 inches) plastic reel as shown.
2. Turn the two screws indicated by ★ counterclockwise until it stops, and then turn them clockwise in 1¾ turns.
3. Turn the two screws indicated by ◉ so that the tape travels in the center of both reel flanges in rewind and fast forward modes.
4. Turn the two tape guides indicated by ▲ , for fine adjustment, so that the tape travels in the center of the guides without tape curl in playback mode.
5. When the tape curls, repeat the above steps.

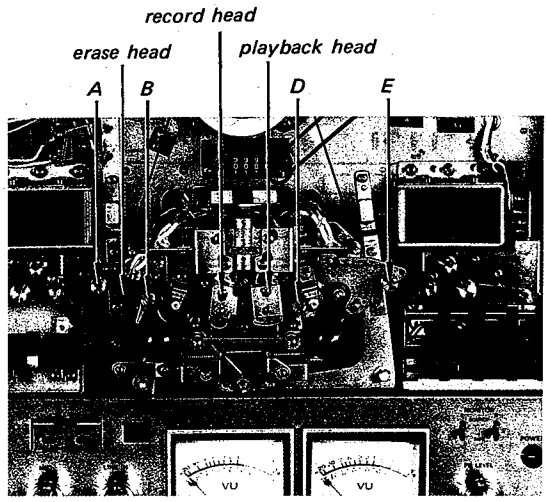


13. Tape Guide Adjustment (2)

Perform this adjustment after the reel table height adjustment and the tape guides adjustment (1) are completed. Tape should not curl at each tape guide B and D.
If necessary, adjust the tape guides B and D with the tape guide D as standard.

Note: 1. Make sure that the three heads are correctly positioned as specified. If necessary, perform the head height adjustments on page 19 and 21.
2. If all the tape guides B and D are not correctly positioned, adjust them so that the tape travels in the center of the pinch roller.

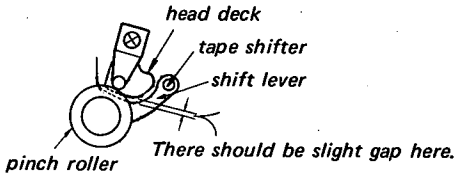




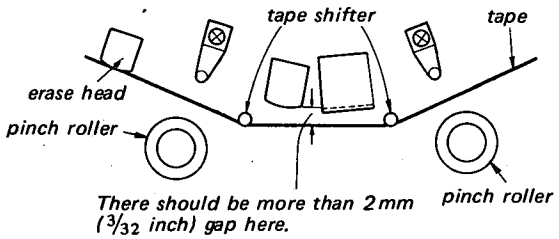
14. Tape Shifter Position Check

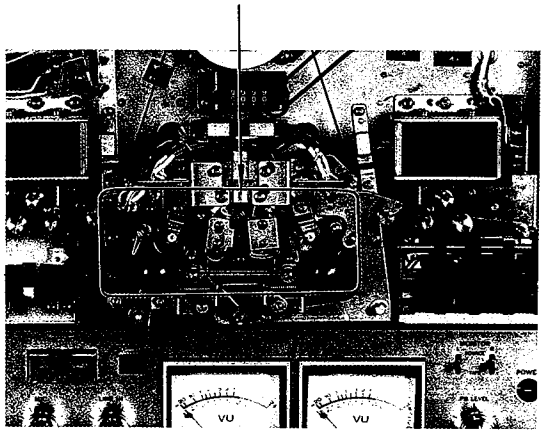
Perform this check for both left and right shifters with the unit in horizontal position.

1. In playback mode the shift levers should not touch the head deck.



2. At tape end in rewind and fast forward modes, there should be more than 2 mm ($^3/_{32}$ inch) gap between the tape and the record and playback heads. At this time the tape may touch the erase head.





15. Function Switch Operation Check

1. Push the POWER switch ON with the tension arms released. Next push each function button. No operation should take place, and each function button should not lock.
2. When the tension arm L and/or R are activated, the stop solenoid should be de-energized. The solenoid can be seen when looked at in the direction of the arrow indicated by ★. When the solenoid is de-energized, a click can be heard.
3. Activate the tension arm L or R, and make sure of the following functions.

   3-1. Push the forward button. The button should lock. When the activated tension arm is released, the locked button should release itself

   3-2. Push the forward button. Then push the stop button. At this time, the locked forward button should release itself.

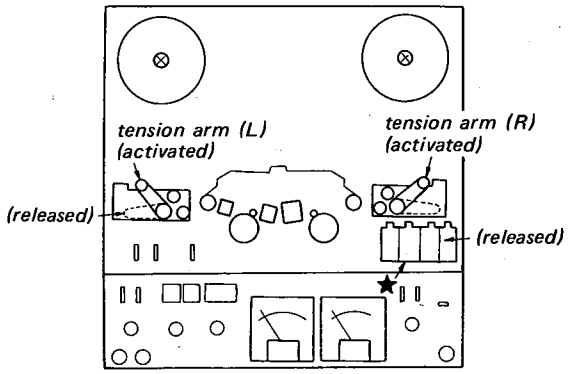
   3-3. Push the forward button. Then push the POWER switch OFF. The locked forward button should remain locked. Next push the POWER switch ON. The forward button should still remain locked.

   3-4. Push the fast forward button. The button should lock. When the activated tension arm is released, the locked button should release itself.

   3-5. Push the fast forward button. Then push the stop button. At this time the locked button should release itself.

   3-6. Push the rewind button. The button should lock. When the activated tension arm is released, the locked button should release itself.

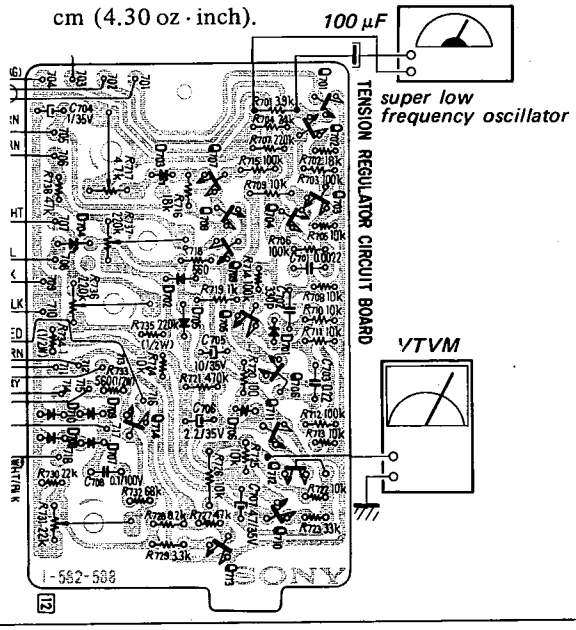
   3-7. Push the rewind button. Then push the stop button. At this time the locked button should release itself.



16. Tension Regulator Adjustment (Not normally performed)

Note: For this adjustment a super low frequency oscillator (3 Hz to 10 Hz) is required. Without the oscillator, do not perform this adjustment and only replace the defective parts. When adjusting adjustable resistors, turn them in the direction of increasing torque, so that the torque rises to the specified value.

1. Supply the rated power voltage.
2. Unsolder the three lead wires of the FG (frequency generator) coil in the supply reel motor M1, connect a super low frequency oscillator of 1 Vp-p output across R701 through a 100μF electrolytic capacitor.
3. Set TAPE SPEED switch to "9.5 cm 3¾" and REEL SIZE switch to "10".
4. Adjust the oscillator frequency so that the voltage between the emitter of Q712 transistor and the chassis ground is 9 volts in playback mode.
5. With the frequency adjusted in step 4, adjust R731 so that the supply motor torque is 250 g. cm (3.47 oz · inch).
6. Change the oscillator frequency to 10 Hz and adjust R717 so that the torque is 80 g. cm (1.11 oz · inch).
7. Change the oscillator frequency to 3.3 Hz and adjust R736 so that the torque is 310 g · cm (4.30 oz · inch).
8. Repeat steps 6 and 7 once more.
9. Set TAPE SPEED switch to "38 cm 15" and change the oscillator frequency to 6.6 Hz. Then adjust R737 so that the torque is 310 g · cm (4.30 oz · inch).



2-2. ELECTRICAL ADJUSTMENTS

Precaution:

1. Clean the following parts with a swab moistened with alcohol:
   record head — pinch roller
   playback head — rubber belts
   erase head — idlers
   capstan — tape guides
2. Demagnetize record, playback and erase heads with a head demagnetizer.
3. Do not use magnetized screwdriver for adjustments.
4. After adjustments, apply locking compounds to the adjusted parts.
5. Adjustments should be performed in the order listed in this service manual.
6. Adjustments and measurements should be performed for each L and R channel with the rated power supply voltage unless otherwise specified.
7. Switches and controls, which are not given in "Settings" for the each adjustment, can be set in any modes or positions. Power switch, however, should be ON unless otherwise noted.

Test Equipment/Tools Required:

audio oscillator (af osc)
VTVM
VOM
attenuator (600Ω)
digital frequency counter or speed checker (SONY LFM-30)
oscilloscope
resistors: 600Ω, 10kΩ, 100kΩ
SONY test tape
J-19-F2

Tone:	1	2	3	4	5	6	7
Frequency: (Hz)	400	400	10k	12.5k	7k	80	40
Level (dB):	0	-10	-10	-10	-10	-10	-10

J-19-A2 (12.5 kHz, -10 dB)
SPC-47 (4 kHz, 0 dB)
blank tapes (completely erased)
NPS-1 (for NORMAL record)
SLH-S1 (for SPECIAL record)

Normal Input Level

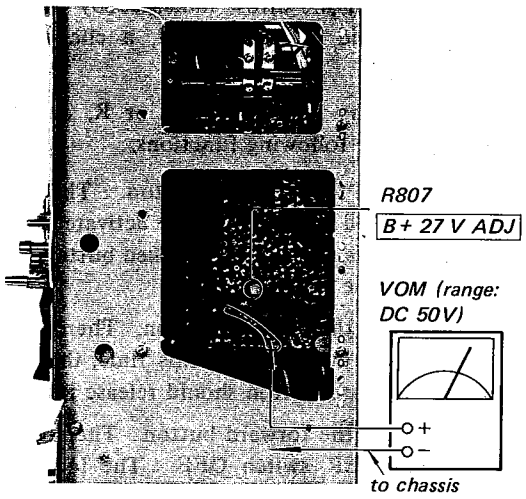
	Impedance	Level
MIC	300Ω	-60 dB (0.77 mV)
LINE IN	10 kΩ	-10 dB (0.25 V)

Normal Output Level

	Load Impedance	Level
LINE OUT	100 kΩ	-5 dB (0.44 V)
HEADPHONE	8Ω	-28 dB (31 mV)

1. B+ 27 V Adjustment

Settings:



Procedure:

Adjust R807 for 26.5 to 27.0 V DC on VOM.

Note: The ripple voltage should be less than 1 mV p-p.

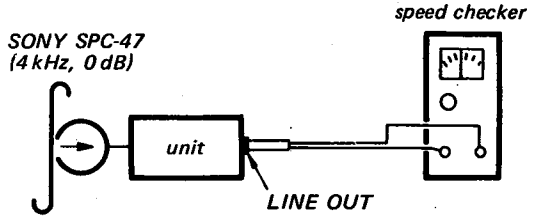
2. Tape Speed Adjustment

Settings:

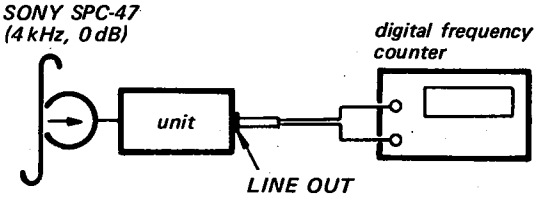
REEL SIZE switch:	7
TAPE SPEED switch:	19 cm, 7½ and 38 cm, 15
EQ (TAPE SELECT) switch:	NORMAL
MONITOR switch:	TAPE
PB LEVEL control:	mechanical mid

Procedure:

Mode: playback

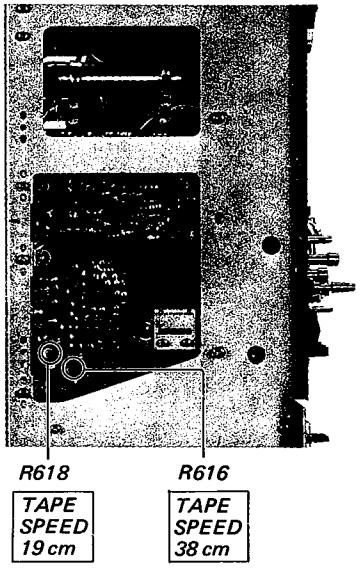


or



TAPE SPEED	Adjust	Specification	
		speed checker	digital frequency counter
19 cm, 7½	R618	-1 ~ +1%	3,960 ~ 4,040 Hz
38 cm, 15	R616	-1 ~ +1%	7,920~8,080 Hz

Adjustment Location:



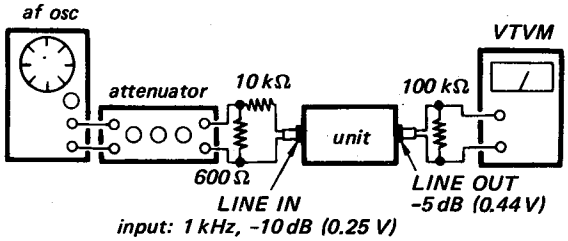
3. Meter Level Adjustment

Settings:

EQ (TAPE SELECT) switch:	NORMAL
MONITOR switch:	SOURCE
PB LEVEL control:	mechanical mid

Procedure:

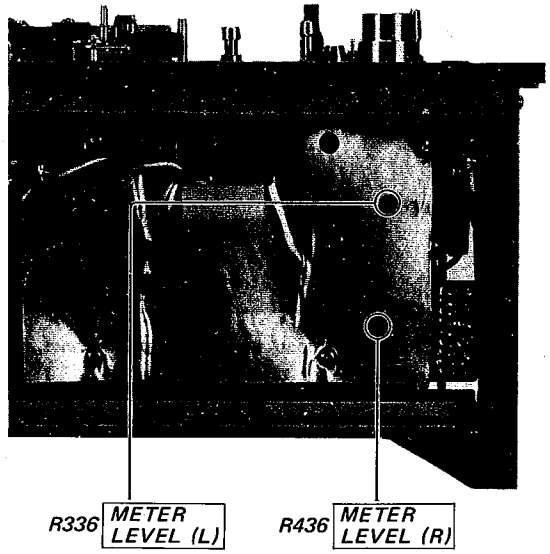
1. Calibrate the level meters for 0 % indication with POWER switch OFF.
2. Adjust LINE IN control for -5 dB (0.44 V).



3.

Adjust	Remarks
R336 (L channel)	0 VU on the level meters
R436 (R channel)	

Adjustment Location:



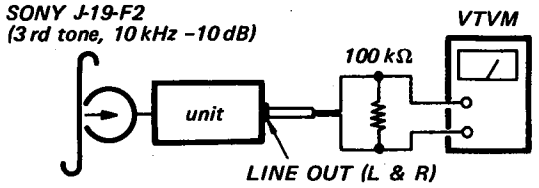
4. Playback Head Angle Adjustment

Settings:

REEL SIZE switch: 7
TAPE SPEED switch: 19 cm, 7½
EQ (TAPE SELECT) switch: NORMAL
MONITOR switch: TAPE
PB LEVEL control: mechanical mid

Procedure:

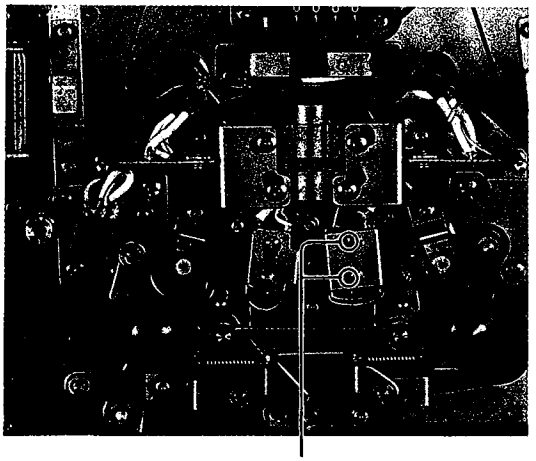
Mode: playback



Loosen the adjustment screws and correctly position the playback head for the highest VTVM reading.

Note: Slightly touch the supply reel and at this time the VTVM reading deviation should be less than 1 dB.

Adjustment Location:



playback head angle adjustment screws.

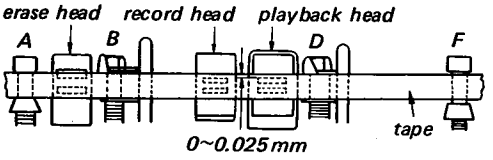
5. Playback Head Height Adjustment

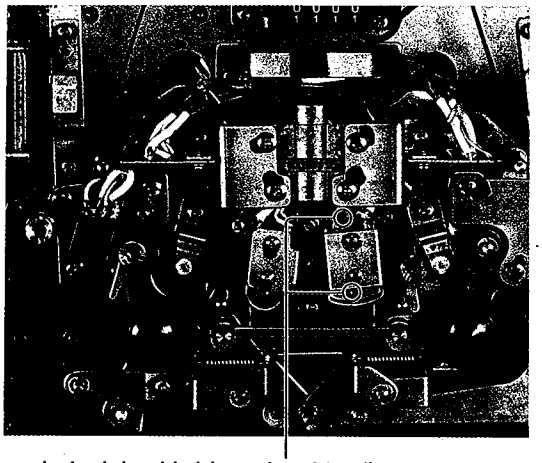
Settings:

REEL SIZE switch: 7
TAPE SPEED switch: 19 cm, 7½

Procedure:

Play back a tape and align the tape edge and the playback head core as shown by turning the height and zenith adjustment screws.





playback head height and zenith adjustment screws.

6. Playback Head Azimuth and Phase Adjustments

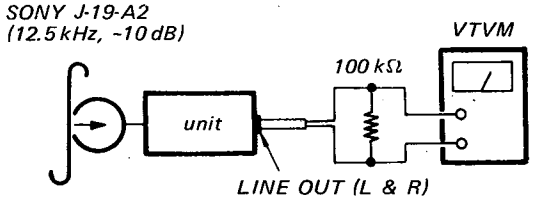
Settings:

REEL SIZE switch:	7
TAPE SPEED switch:	19 cm, 7½
EQ (TAPE SELECT) switch:	NORMAL
MONITOR switch:	TAPE
PB LEVEL control:	mechanical mid

Procedure:

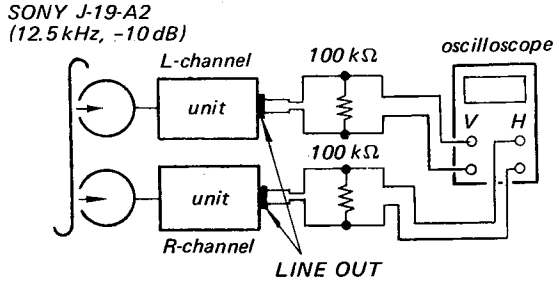
If an oscilloscope is available, employ Procedure 2. If a simplified test is to be made, follow Procedure 1.

1. Mode: playback



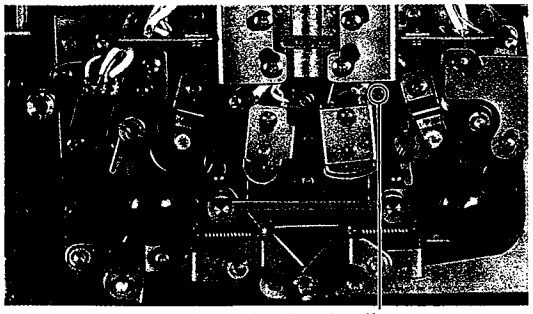
Turn the adjustment screw shown in the photo below for the highest VTVM reading. If the highest peaks for L and R do not coincide, place the adjustment screw to the mechanical mid of the two positions for the peaks.

2. Mode: playback



Adjust	On the oscilloscope			
azimuth adjustment screw	in-phase	30°	90°	more than 90°
	good			wrong

Adjustment Location:



playback head azimuth adjustment screw.

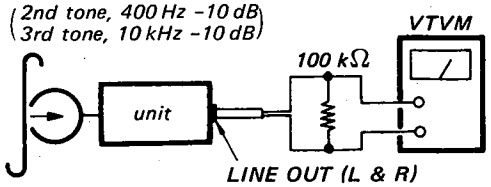
7. Playback Equalizer Adjustment

Settings:

REEL SIZE switch:	7
TAPE SPEED switch:	19 cm, 7½
EQ (TAPE SELECT) switch:	NORMAL
MONITOR switch:	TAPE
PB LEVEL control:	mechanical mid

Procedure:

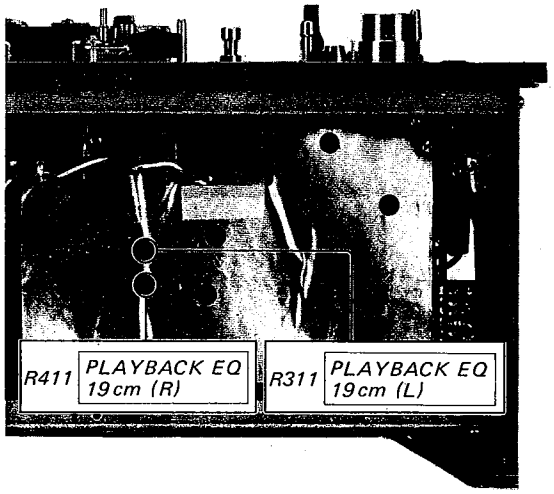
Mode : playback



	Adjust	VTVM reading
2nd tone 400 Hz	PB LEVEL control	0 dB (0.775 V)
3rd tone 10 kHz	R311 (L channel)	
	R411 (R channel)	-0.5 dB (0.73 V)

Specification for your reference in case of a more detailed test:

J-19-F2 (TAPE SPEED: 19 cm, 7½)	
400 Hz	0 dB (standard)
10 kHz	-0.5 ± 1 dB
12.5 kHz	-0.5 ± 1.5 dB
7 kHz	-0.5 ± 1.5 dB
80 Hz	+2 ± 2 dB
40 Hz	+1.5 ± 2 dB



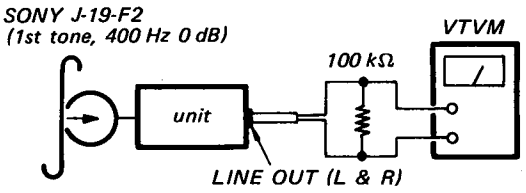
8. Playback Level Adjustment

Settings:

REEL SIZE switch:	7
TAPE SPEED switch:	19 cm, 7½
EQ (TAPE SELECT) switch:	NORMAL
MONITOR switch:	TAPE
PB LEVEL control:	mechanical mid

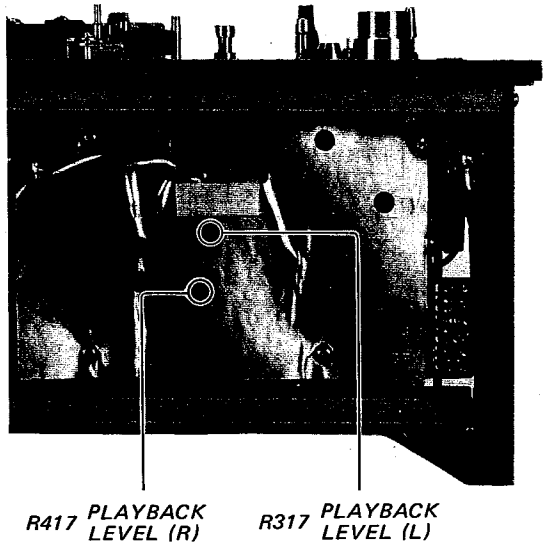
Procedure:

Mode: playback



Adjust	VTVM reading
R317 (L channel) R417 (R channel)	-5 dB (0.775 V) allowance : ±1 dB

Note: 1. Turn the EQ (TAPE SELECT) switch to SPECIAL position and make sure that the output level lowers by 2.4 ± 1 dB.
2. Difference between L and R channels should be within 1 dB.



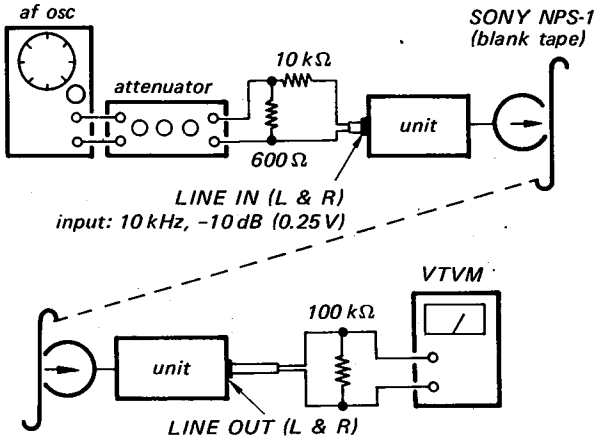
9. Record Head Angle Adjustment

Settings:

REEL SIZE switch:	7
TAPE SPEED switch:	19 cm, 7½
BIAS (TAPE SELECT) switch:	LOW
EQ (TAPE SELECT) switch:	NORMAL
MONITOR switch:	TAPE
LINE IN control:	mechanical mid
PB LEVEL control:	mechanical mid

Procedure:

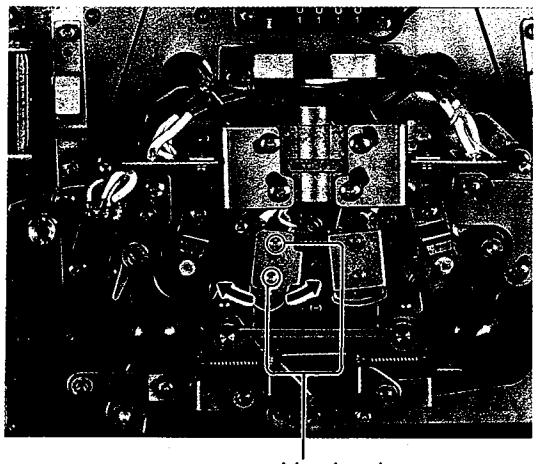
Mode: record and simultaneous playback



Loosen the adjustment screws and correctly position the record head for the highest VTVM reading.

Note: Slightly touch the supply reel and at this time the VTVM reading deviation should be less than 1 dB.

Adjustment Location:



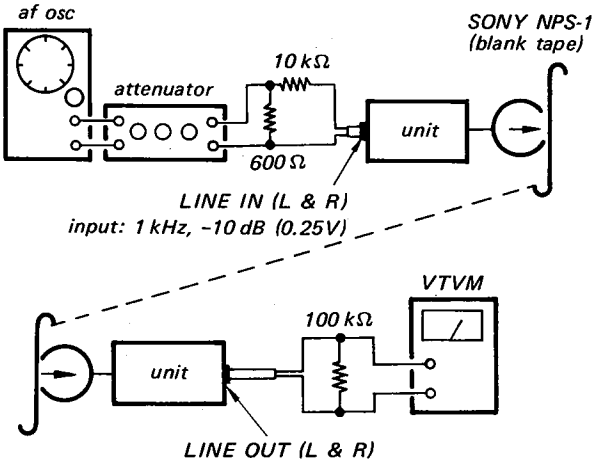
10. Record Head Height Adjustment

Settings:

REEL SIZE switch:	7
TAPE SPEED switch:	19 cm, 7½
BIAS (TAPE SELECT) switch:	LOW
EQ (TAPE SELECT) switch:	NORMAL
MONITOR switch:	TAPE
LINE IN control:	mechanical mid
PB LEVEL control:	mechanical mid

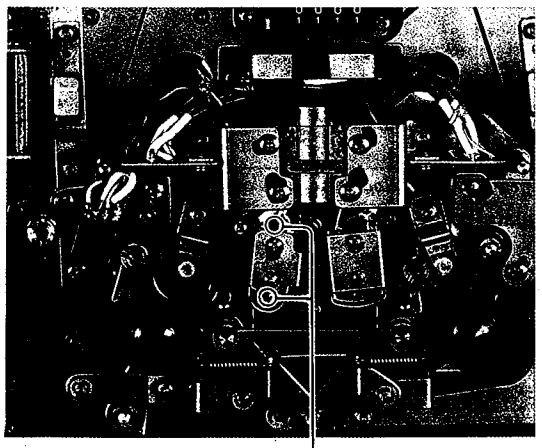
Procedure:

Mode: record and simultaneous playback



Turn the height and zenith adjustment screws for the highest VTVM reading.

Adjustment Location:



record head height and zenith adjustment screws

11. Record Head Azimuth and Phase Adjustments

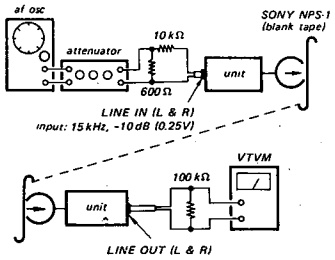
Settings:

REEL SIZE switch:	7
TAPE SPEED switch:	19 cm, 7½
BIAS switch:	LOW
TAPE SELECT (EQ) switch:	NORMAL
MONITOR switch:	TAPE
LINE IN control:	mechanical mid
PB LEVEL control:	mechanical mid

Procedure:

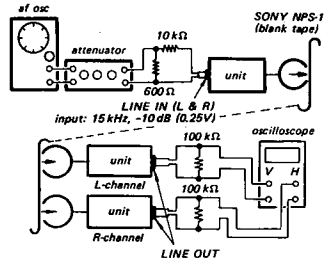
When an oscilloscope is available, employ Procedure 2. When a simplifed test is made, follow Procedure 1.

1. Mode: record and simultaneous playback



Turn the adjustment screw for the highest VTVM reading. If the highest peaks for L and R do not coincide, place the adjustment screw to the mechanical mid of the two positions for the peaks.

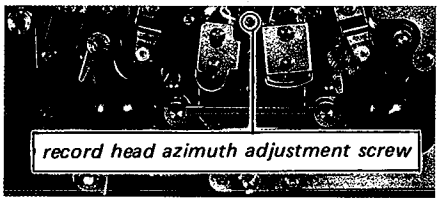
2. Mode: record and simultaneous playback



Adjust	On the oscilloscope			
azimuth adjustment screw	in-phase	30°	90°	more than 90°
	good			wrong

Note: Difference between the highest levels of L and R and the finally adjusted level should be within 1 dB.

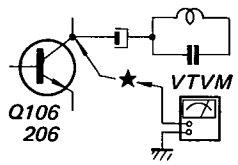
Adjustment Location:

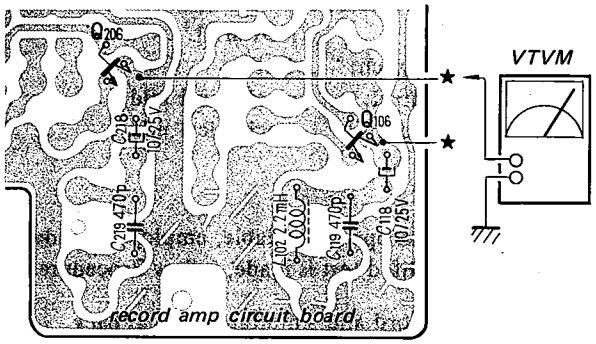


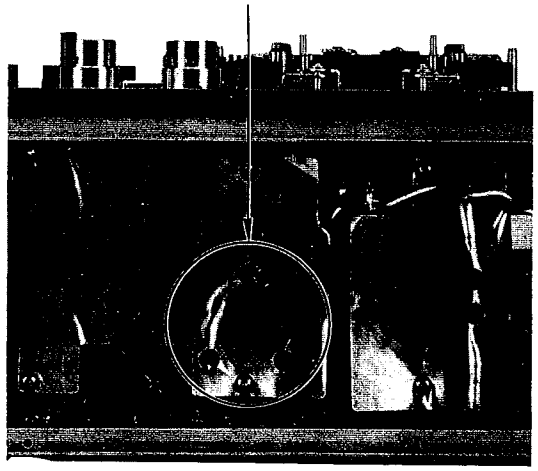
record head azimuth adjustment screw

12. Bias Trap Adjustment

Settings:



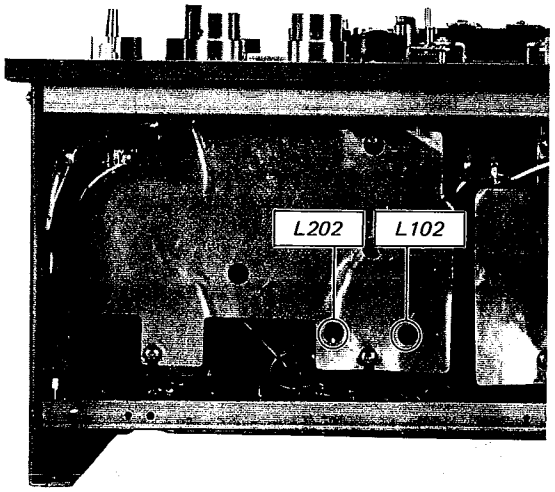




Procedure:

In record mode turn L102 (L-channel) and L202 (R-channel) for the lowest VTVM reading (-40 dB (7.7 mV) or less).

Adjustment Location:



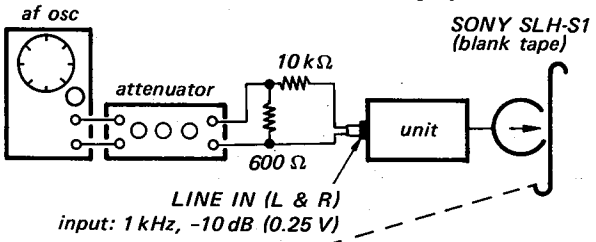
13. Record Bias Adjustment

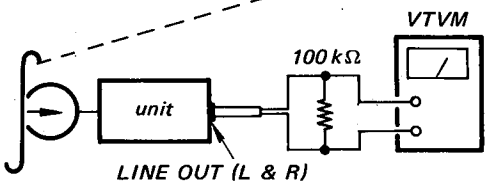
Settings:

REEL SIZE switch:	7
TAPE SPEED switch:	19 cm 7½
BIAS (TAPE SELECT) switch:	LOW
EQ (TAPE SELECT) switch:	SPECIAL
MONITOR switch:	TAPE
LINE IN control:	mechanical mid
PB LEVEL control:	mechanical mid

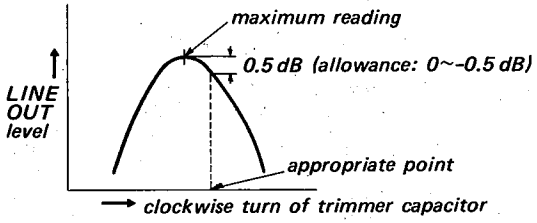
Procedure:

Mode: record and simultaneous playback

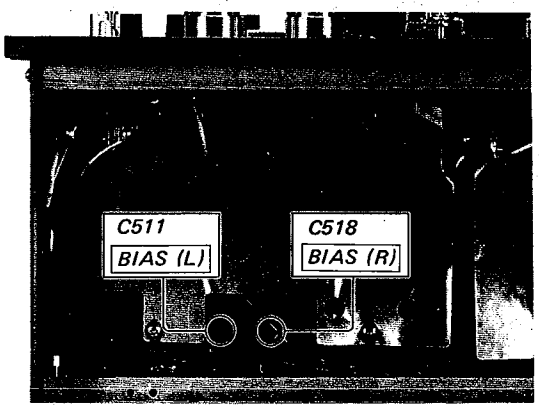




As trimmer capacitor C511 (L-channel) or C518 (R-channel) is slowly turned clockwise, VTVM reading will go up to a maximum and then start falling again. Adjust the capacitor until VTVM reads 0.5 dB below and beyond the maximum reading.



Adjustment Location:



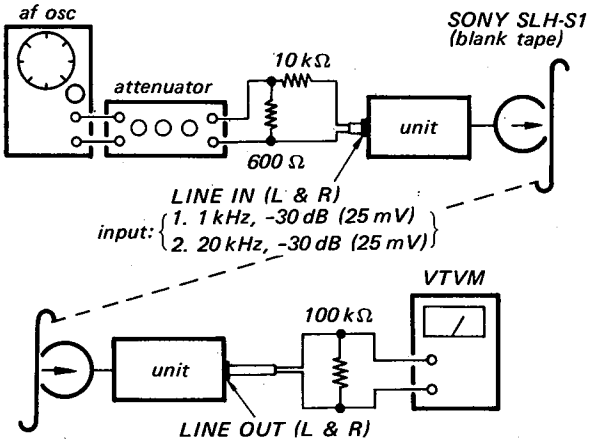
14. Overall Frequency Response (SPECIAL RECORD EQ) Adjustment

Settings:

REEL SIZE switch: 7
TAPE SPEED switch: 38 cm 15, 19 cm 7½
BIAS (TAPE SELECT) switch: LOW
EQ (TAPE SELECT) switch: SPECIAL
MONITOR switch: TAPE
LINE IN control: mechanical mid
PB LEVEL control: mechanical mid

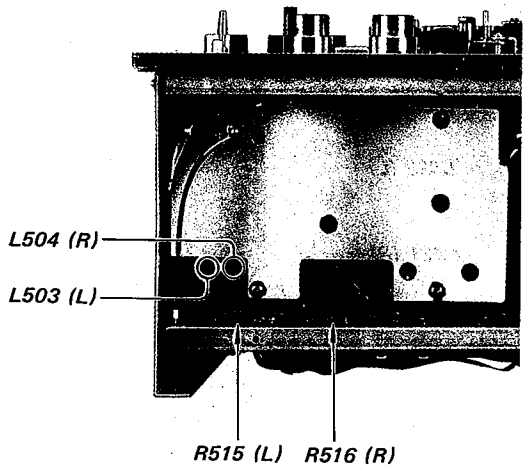
Procedure:

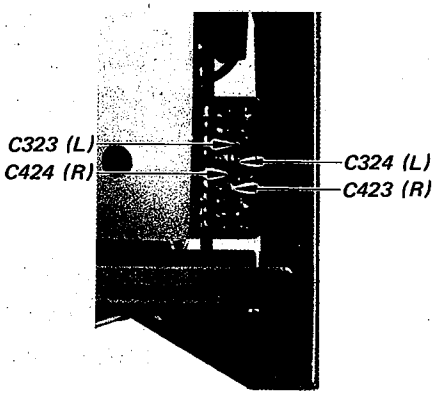
Mode: record and simultaneous playback



Tape Speed	Input Signal		Adjust		VTVM Reading
	Freq.	Level	L-ch	R-ch	
38 cm/s (15 ips)	1 kHz	-30 dB (25 mV)	——	——	Memorize
	15 kHz		R515	R516	for +0.5 dB relative to the reading at 1 kHz
	30 kHz		L503	L504	for the same reading relative to the reading at 1 kHz
19 cm/s (7½ ips)	1 kHz		——	——	Memorize
	10 kHz		C323 C324	C423 C424	for +0.5 dB relative to the reading at 1 kHz
	25 kHz		——	——	Make sure of the same reading relative to the reading at 1 kHz.

Adjustment Location:





Adjust by soldering or unsoldering the portions indicated.

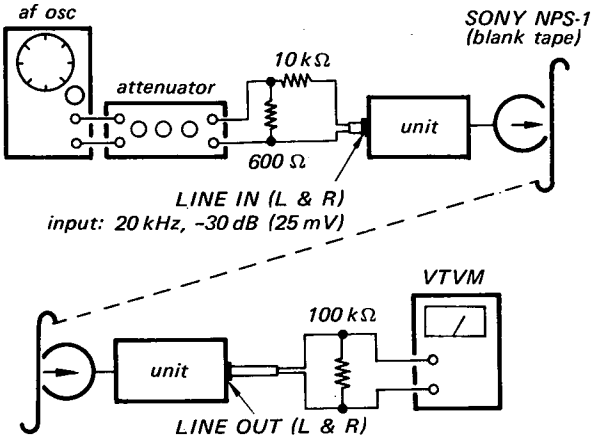
15. Overall Frequency Response (NORMAL RECORD EQ) Adjustment

Settings

REEL SIZE switch: 7
TAPE SPEED switch: 38 cm 15, 19 cm 7½
BIAS (TAPE SELECT) switch: LOW
EQ (TAPE SELECT) switch: NORMAL
MONITOR switch: TAPE
LINE IN control: mechanical mid
PB LEVEL control: mechanical mid

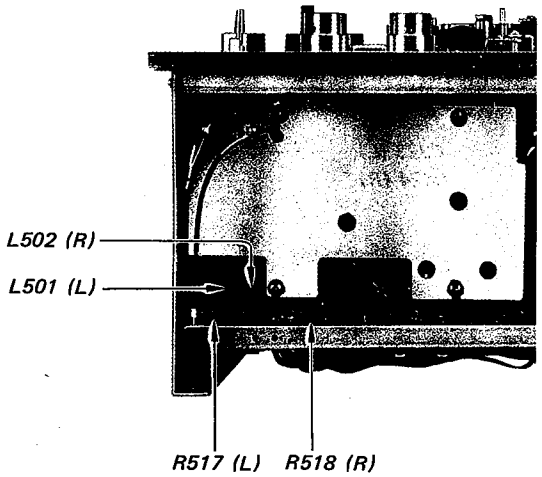
Procedure:

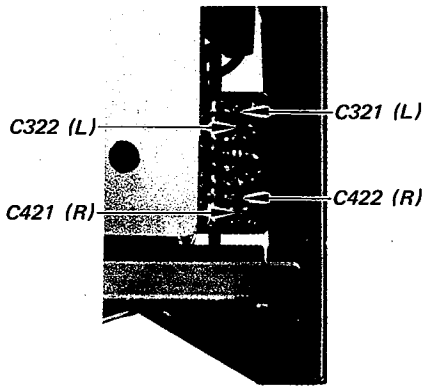
Mode: record and simultaneous playback



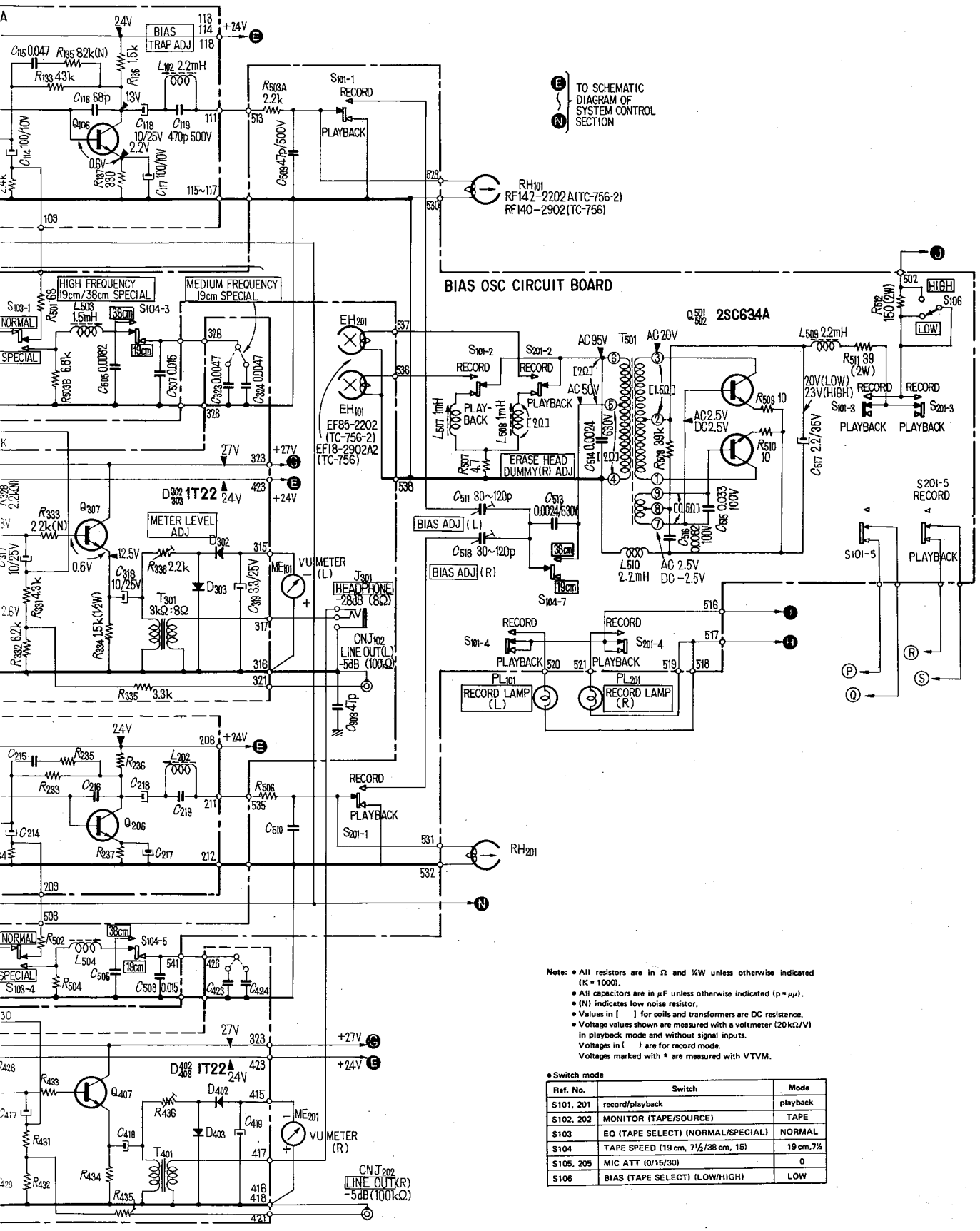
Tape Speed	Input Signal		Adjust		VTVM Reading
	Freq.	Level	L-ch	R-ch	
38 cm/s (15 ips)	1 kHz	−30 dB (25 mV)	——	——	Memorize
	15 kHz		R517	R518	for +0.5 dB relative to the reading at 1 kHz
	20 kHz		L501	L502	for the same reading relative to the reading at 1 kHz
19 cm/s (7½ ips)	1 kHz		——	——	Memorize
	10 kHz		C321 C322	C421 C422	for +0.5 dB relative to the reading at 1 kHz
	15 kHz		——	——	Make sure of the same reading relative to the reading at 1 kHz.

Adjustment Location:





Adjust by soldering or unsoldering the portions indicated.

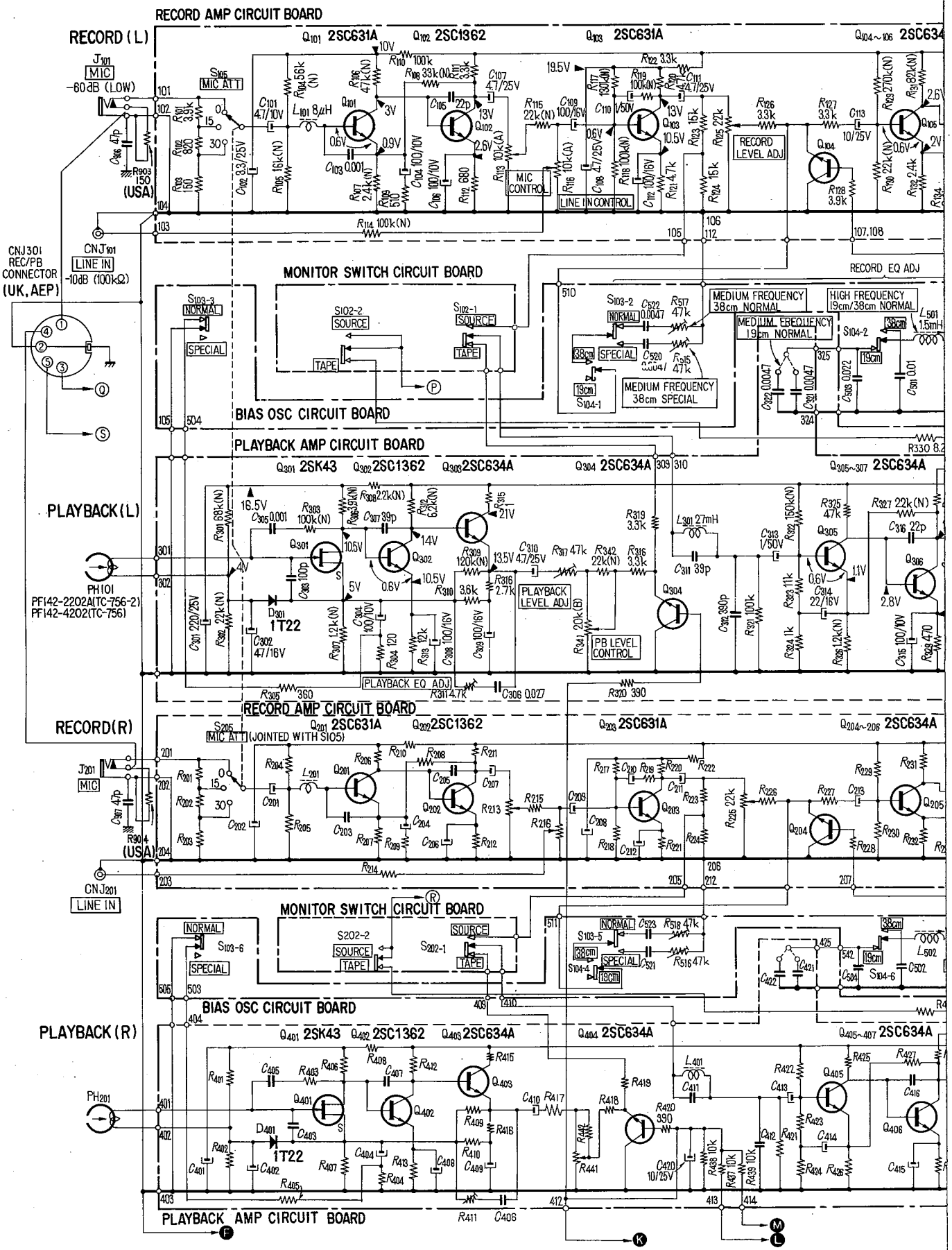


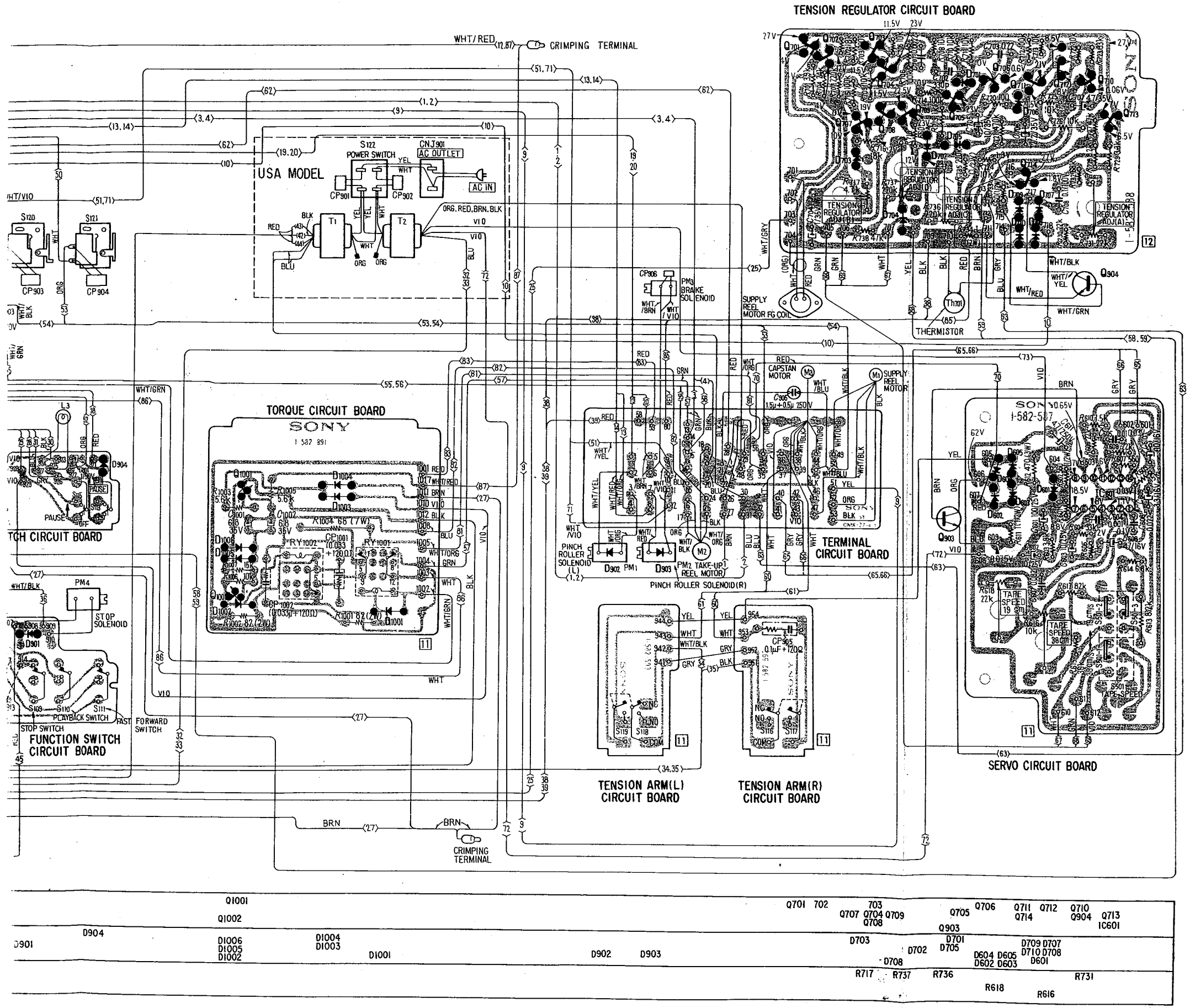
Note: • All resistors are in Ω and ¼W unless otherwise indicated (K = 1000).
• All capacitors are in μF unless otherwise indicated (p = μμ).
• (N) indicates low noise resistor.
• Values in [ ] for coils and transformers are DC resistance.
• Voltage values shown are measured with a voltmeter (20kΩ/V) in playback mode and without signal inputs.
Voltages in ( ) are for record mode.
Voltages marked with * are measured with VTVM.

• Switch mode

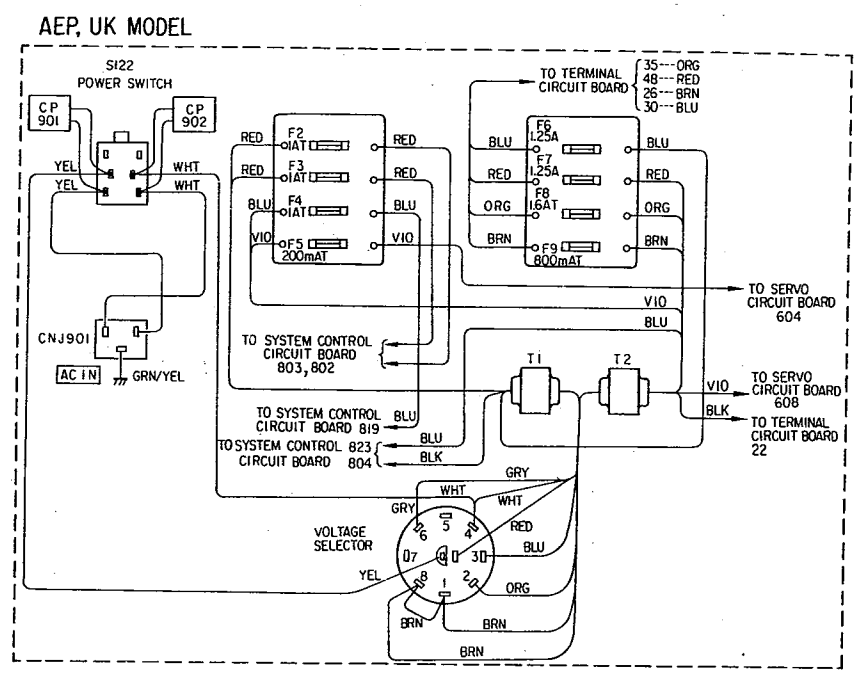
Ref. No.	Switch	Mode
S101, 201	record/playback	playback
S102, 202	MONITOR (TAPE/SOURCE)	TAPE
S103	EQ (TAPE SELECT) (NORMAL/SPECIAL)	NORMAL
S104	TAPE SPEED (19 cm, 7½/38 cm, 15)	19 cm, 7½
S105, 205	MIC ATT (0/15/30)	0
S106	BIAS (TAPE SELECT) (LOW/HIGH)	LOW

3-2. SCHEMATIC DIAGRAM – AMP SECTION

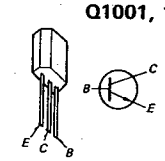



TENSION REGULATOR CIRCUIT BOARD
TORQUE CIRCUIT BOARD
FUNCTION SWITCH CIRCUIT BOARD
TENSION ARM(L) CIRCUIT BOARD
TENSION ARM(R) CIRCUIT BOARD
TERMINAL CIRCUIT BOARD
SERVO CIRCUIT BOARD
USA MODEL
CRIMPING TERMINAL
THERMISTOR
CAPSTAN MOTOR
SUPPLY REEL MOTOR
TAKE-UP REEL MOTOR
PINCH ROLLER SOLENOID (L)
PINCH ROLLER SOLENOID(R)
STOP SOLENOID
PLAYBACK SWITCH
FAST FORWARD SWITCH
STOP SWITCH
POWER SWITCH
AC OUTLET
AC IN
SUPPLY REEL MOTOR FG CON
PM3 BRAKE SOL ENOID
VOLTAGE SELECTOR
TAPE SPEED 19cm
TAPE SPEED 38cm
Q701 702 703 Q707 Q704 Q709 Q705 Q706 Q711 Q714 Q712 Q710 Q904 Q713 IC601
D901 D904 Q1001 Q1002 D1006 D1005 D1002 D1004 D1003 D1001 D902 D903 D703 D702 D701 D705 D708 D604 D605 D602 D603 D709 D707 D710 D708 D601 R717 R737 R736 R618 R731 R616

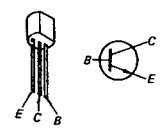
AEP, UK MODEL



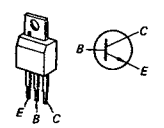
2SC634A: Q701~713
Q801~811
Q1001, 1002



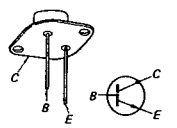
2SC1384: Q714



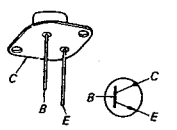
2SC1124: Q812



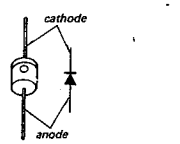
2SD291: Q901, 902



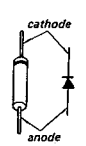
2SC867: Q903, 904



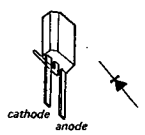
10D2: D601~605, D707~710, D801, 802, D806, 807, D811~817, D901~904, D1001, 1002



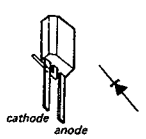
1T40: D701, 702, D804, 805, D808, D1003~1006



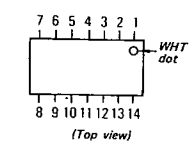
MZ-08: D703, 803



MZ-12: D704



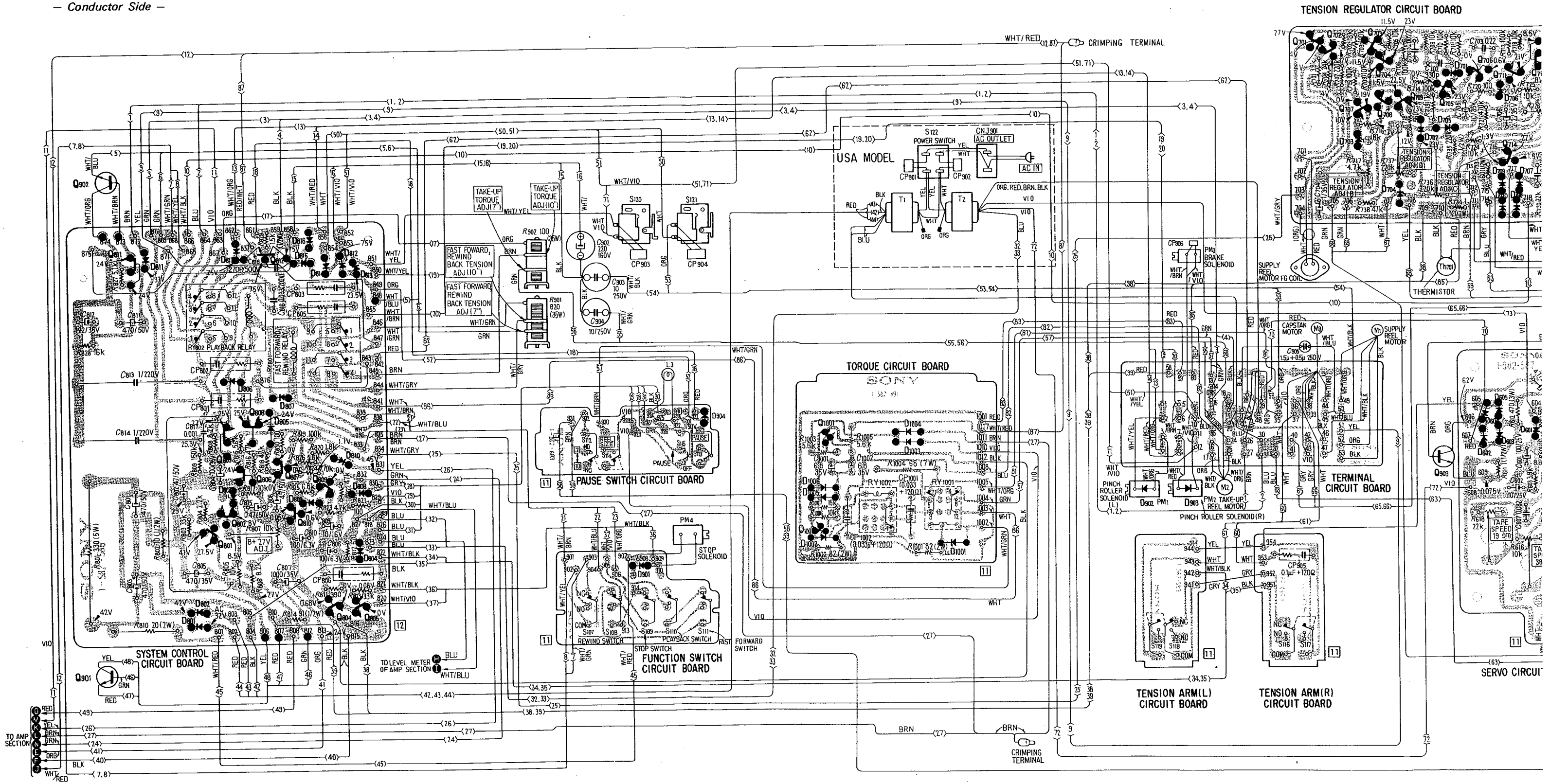
CX-032B: IC601



TC-756/TC-756-2 TC-756/TC-

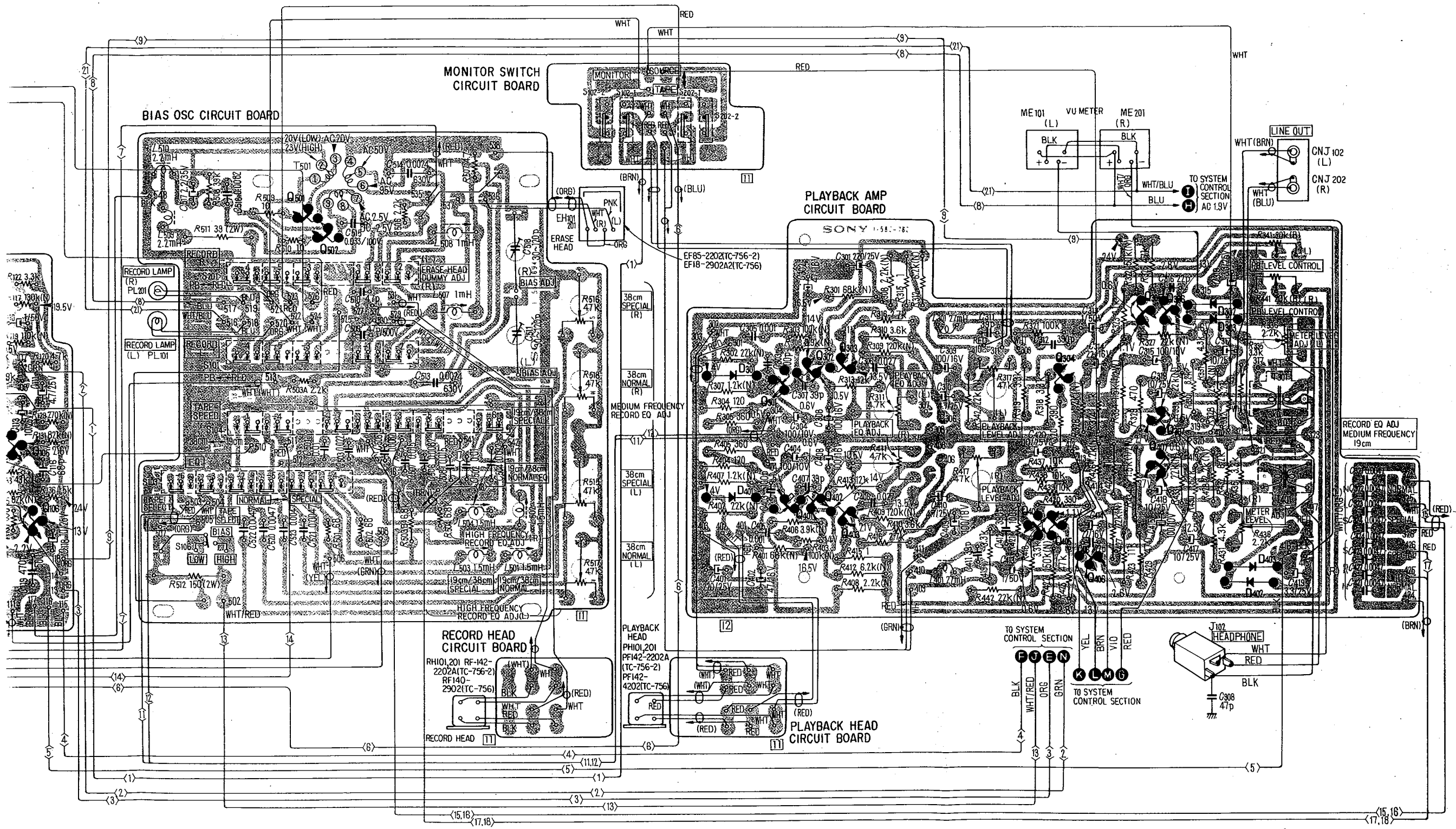
3-4. MOUNTING DIAGRAM — SYSTEM CONTROL SECTION —

— Conductor Side —

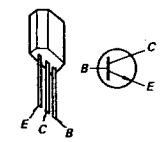


Q, IC	Q902 Q811 Q901 Q803 Q802 Q801 Q808 Q806 Q812 Q807 Q809 Q810 Q804 Q805 Q1001 Q1002 Q701 702 703 Q707 Q704 Q709 Q708 Q705 Q706 Q711 Q714 Q712 Q903
D	D811 D802 D801 D817 D806 D803 D807 D805 D816 D815 D809 D814 D812 D813 D810 D808 D804 D901 D904 D1006 D1005 D1002 D1004 D1003 D1001 D902 D903 D703 D708 D702 D701 D705 D709 D710 D604 D605 D602 D603 D601
ADJ	R902 R901 R717 R737 R736 R618 R616

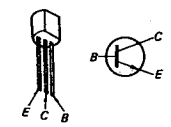
TC-756/ TC-756-2



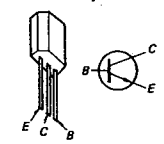
2SC631A: Q101, 103
201, 203



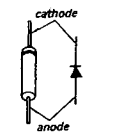
2SC1362: Q102, 202
302, 402



2SC634A: Q104, 204, 105, 205
106, 206, 303, 403
304, 404, 305, 405
306, 406, 307, 407
501, 502

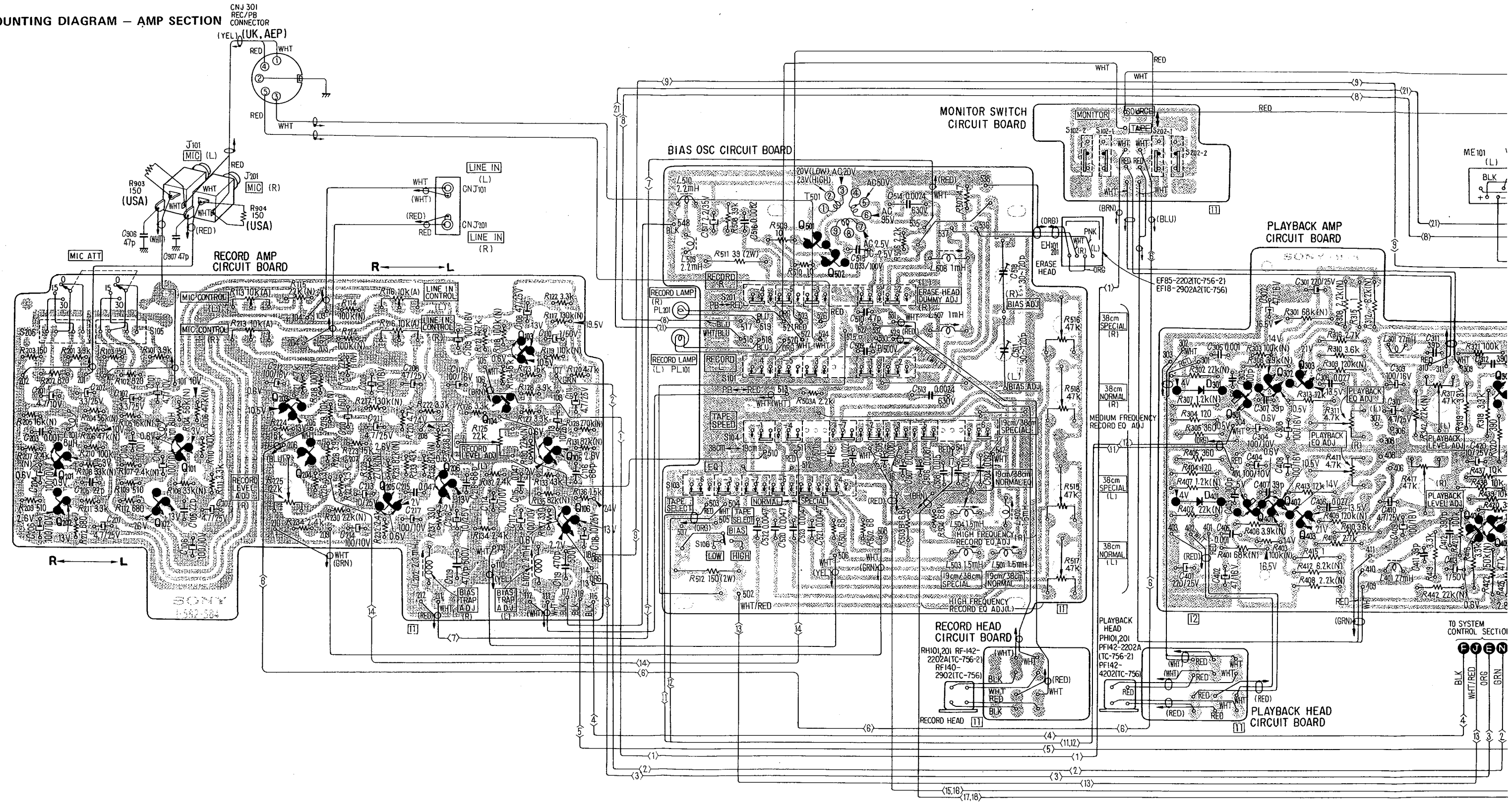


1T22: D301, 401, 302,
402, 303, 403



Q105 Q106	Q501 Q502	Q301 Q401	Q302 Q402	Q303 Q403	Q304 Q404	Q405 Q406	Q305 Q306 Q307 Q407
D301 D401							D302 D303 D403 D402
L508 L507 L504 L503	L502 L501	R516 R518 R515 R517	R311 R411	R317 R417			R341 R441 R436 R336

3-3. MOUNTING DIAGRAM — AMP SECTION



| | | |

TC-756/TC-756-2

SECTION 6
HARDWARE

Part No.	Description
	SCREWS
	All screws are Phillips type (cross recess type) unless otherwise indicated. (–): slotted head
7-621-209-00	P 2.6 x 8
7-621-259-32	P 2.6 x 5
7-621-712-65	2.6 x 8, set; cone point
7-628-253-05	PS 2.6 x 5
7-628-253-95	PS 2.6 x 4
7-682-123-01	P 2 x 3
7-682-124-01	P 2 x 4
7-682-128-01	P 2 x 10
7-682-147-07	P 3 x 6, cup point
7-682-148-01	P 3 x 8,
7-682-164-01	P 4 x 4
7-682-165-01	P 4 x 16
7-682-169-01	P 4 x 35
7-682-247-01	4 x 6, flat point
7-682-348-04	RK 3 x 8
7-682-369-04	RK 4 x 35
7-682-546-05	B 3 x 5
7-682-547-04	B 3 x 6
7-682-625-01	PS 2 x 5
7-682-646-01	PS 3 x 5
7-682-647-01	PS 3 x 6
7-682-648-01	PS 3 x 8
7-682-947-01	PSW 3 x 6
7-682-948-01	PSW 3 x 8
7-682-959-01	PSW 4 x 6
7-682-962-01	PSW 4 x 10
7-683-238-21	3 x 4, w/hexagon socket (cup point)
7-683-240-21	3 x 6, w/hexagon socket (cup point)
7-685-145-21	P 3 x 6, self-tapping
7-685-145-31	P 3 x 6, self-tapping
7-685-158-31	P 4 x 6, self-tapping
	WASHERS
7-623-105-12	2 (midium)
7-623-107-11	2.6 (midium)
7-623-110-12	4 (midium)
7-623-204-11	2, spring
7-623-207-21	2.6, spring (middle)
	RETAINING RINGS
7-624-102-01	E 1.5
7-624-104-01	E 2
7-624-106-01	E 3
7-624-108-01	E 4
7-624-109-01	E 5
7-622-210-02	Nut 4
7-682-013-00	Nut 3
7-623-508-01	Lug 3

P – Pan Head Screw .....

PS – Pan Head Screw with Spring Washer .....

K – Flat Countersunk Head Screw ...

B – Binding Head Screw .....

RK – Oval Countersunk Head Screw ..

T – Truss Head Screw .....

R – Round Head Screw .....

F – Flat Fillister Head Screw .....

SC – Set Screw .....

E – Retaining Ring (E Washer) .....

W – Washer
SW – Spring Washer
LW – Lock Washer
N – Nut

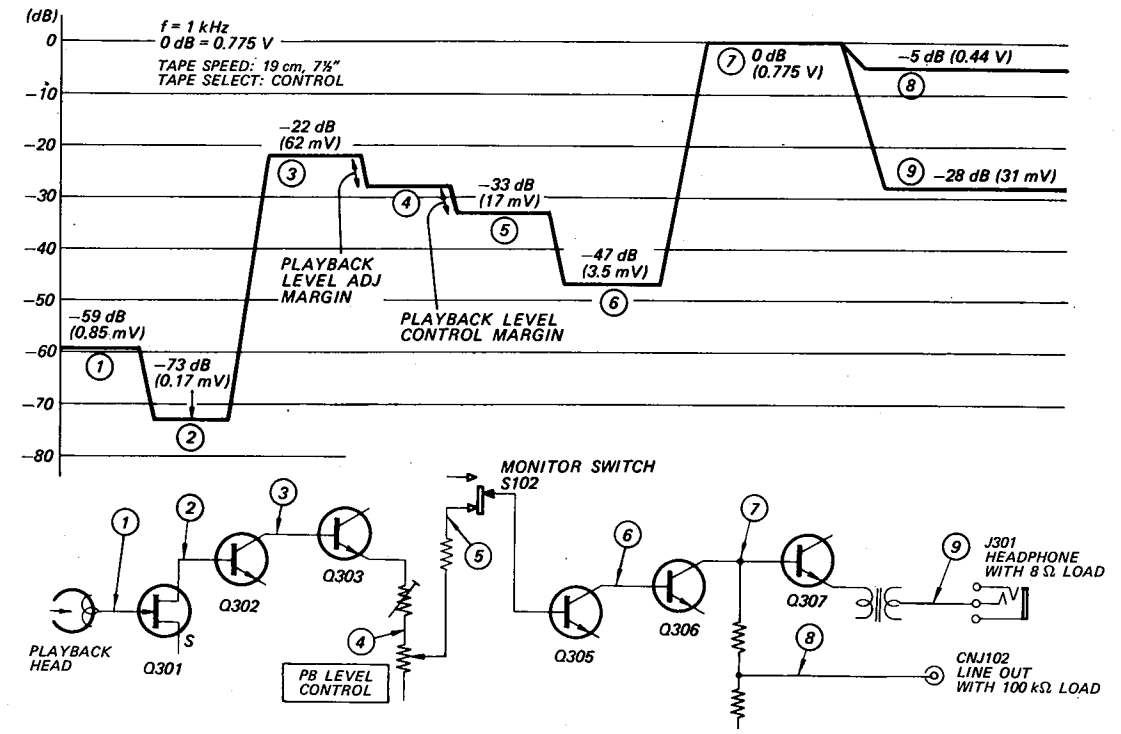
– Example –

Type of Slot
⊕ P 3×10
Length in mm (L)
Diameter in mm (D)
Type of Head

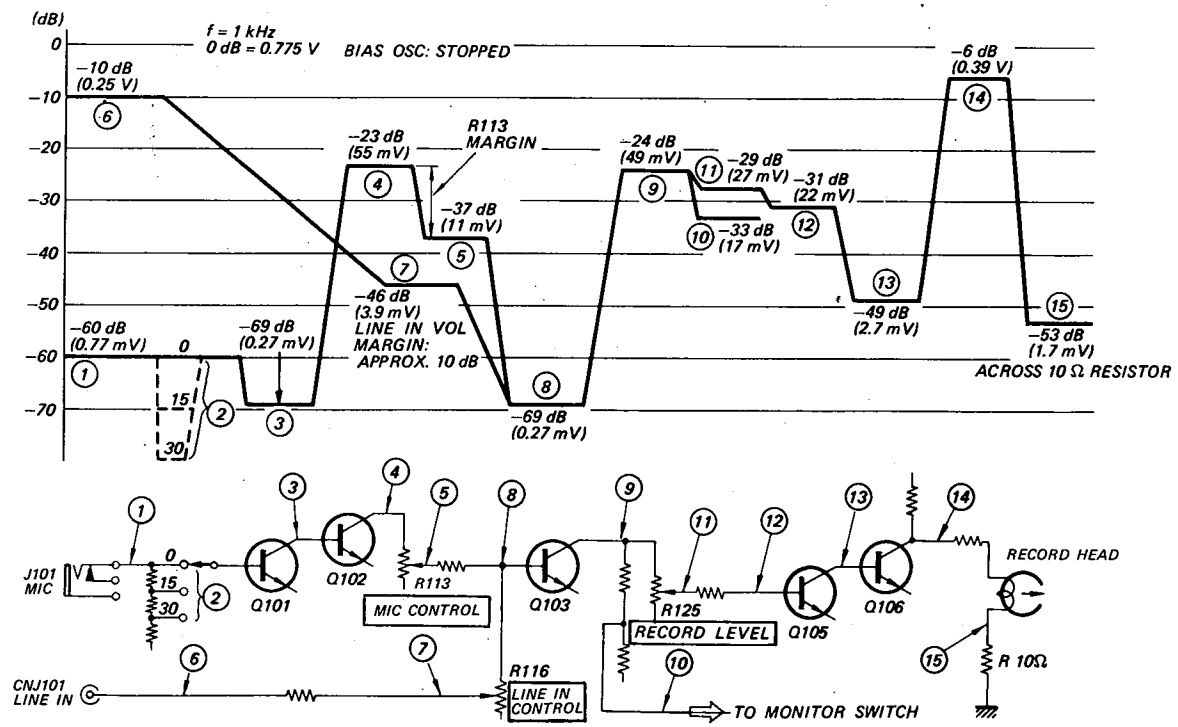
3-1 (B). LEVEL DIAGRAMS (TC-756)

Note: The level diagrams for TC-756-2: on page 26.

Playback Mode



Record Mode



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Ref. No.	Part No.	Description
R336,436	1-222-772-00	2.2k, adjustable
R341,441	1-224-338-00	20k (B), variable
R342,442	1-244-705-09	22k low noise
R437~439	1-244-697-11	10k
R501,502	1-242-645-11	68
R503A	1-242-681-11	2.2k
R503B	1-242-693-11	6.8k
R504	1-242-693-11	6.8k
R505		----------
R506	1-242-681-11	2.2k
R507	1-242-617-11	4.7
R508	1-242-711-11	39k
R509,510	1-242-625-11	10
R511	1-206-477-11	39 2W metal oxide
R512	1-206-644-11	150 2W metal oxide
R515~518	1-222-776-00	47k, adjustable
R601	1-242-625-11	10
R602	1-244-867-11	560 ½W
R603	1-242-687-11	3.9k
R604	1-242-709-11	33k
R605	1-242-699-11	12k
R606	1-242-705-11	22k
R607	1-242-667-11	560
R608	1-242-705-11	22k
R609	1-242-701-11	15k
R610	1-242-677-11	1.5k
R611	1-244-801-11	1 ½W
R612	1-206-717-11	470 3W metal oxide
R613	1-244-695-11	8.2k
R614	1-242-693-11	6.8k
R615	1-242-710-11	36k
R616	1-222-774-00	10k, adjustable
R617	1-242-719-11	82k
R618	1-222-775-00	22k, adjustable
R701	1-242-687-11	3.9k
R702	1-242-703-11	18k
R703	1-242-721-11	100k
R704	1-242-706-11	24k
R705	1-242-697-11	10k
R706	1-242-721-11	100k
R707	1-242-729-11	220k
R708~711	1-242-697-11	10k

Ref. No.	Part No.	Description
R712	1-242-721-11	100k
R713	1-242-697-11	10k
R714,715	1-242-721-11	100k
R716	1-242-703-11	18k
R717	1-222-773-00	4.7k, adjustable
R718	1-242-667-11	560
R719	1-242-673-11	1k
R720	1-242-649-11	100
R721	1-242-737-11	470k
R722	1-242-697-11	10k
R723	1-242-709-11	33k
R724~726	1-242-697-11	10k
R727	1-242-713-11	47k
R728	1-242-695-11	8.2k
R729	1-242-685-11	3.3k
R730	1-242-705-11	22k
R731	1-222-775-00	22k, adjustable
R732	1-242-717-11	68k
R733	1-244-867-11	560 ½W
R734	1-244-801-11	1 ½W
R735	1-244-729-51	220k ½W
R736,737	1-222-778-00	220k, adjustable
R738	1-242-713-11	47k
R801	1-206-775-11	330 5W metal oxide
R802	1-212-958-11	10 ½W fuse
R803	1-242-709-11	33k
R804	1-242-681-11	2.2k
R805	1-242-697-11	10k
R806	1-242-695-11	8.2k
R807	1-222-774-00	10k, adjustable
R808	1-242-695-11	8.2k
R809	1-242-725-11	150k
R810	1-206-470-11	20 2W metal oxide
R811	1-242-663-11	390
R812	1-242-668-11	620
R813	1-242-709-11	33k
R814	1-206-486-11	91 2W metal oxide
R815	1-242-691-11	5.6k
R816	1-242-713-11	47k
R817	1-242-697-11	10k
R818	1-242-713-11	47k
R819	1-242-721-11	100k
R820	1-242-679-11	1.8k
R821	1-242-649-11	100

Ref. No.	Part No.	Description
R822	1-242-713-11	47k
R823	1-242-689-11	4.7k
R824	1-242-731-11	270k
R825	1-242-693-11	6.8k
R826	1-242-691-11	5.6k
R827	1-242-690-11	5.1k
R828	1-242-702-11	16k
R829	1-244-877-11	1.5k ½W
R830	1-242-649-11	100
R901	1-205-523-11	820 35W wirewound
R902	1-227-135-00	100 35W wirewound, adjustable
R903,904	1-242-653-11	150 (USA)
R1001,1002	1-206-485-11	82 2W metal oxide
R1003	1-244-691-11	5.6k
R1004	1-217-343-11	68 7W wirewound
R1005	1-244-691-11	5.6k
R1006	1-244-697-11	10k
R1007	1-244-701-11	15k

SWITCHES

S101,201	1-514-367-00	Slide, record/playback
S102,202	1-516-323-00	Slide, MONITOR
S103	1-516-323-00	Slide, TAPE SELECT
S104	1-514-976-00	Slide, TAPE SPEED
S105,205	1-516-410-00	Rotary Slide, MIC ATT
S106	1-516-325-00	Micro, BIAS (TAPE SELECT)
S107	1-516-325-00	Micro, rewind
S108	1-516-325-00	Micro, rewind
S109	1-516-325-00	Micro, stop
S110	1-516-325-00	Micro, playback
S111	1-516-325-00	Micro, fast forward
S112	1-516-325-00	Micro, REEL SIZE
S113	1-516-325-00	Micro, PAUSE
S114	1-516-325-00	Micro, REEL SIZE
S115	1-516-325-00	Micro, PAUSE
S116	1-516-309-00	Micro, tension arm R
S117	1-516-309-00	Micro, tension arm R
S118	1-516-309-00	Micro, tension arm L
S119	1-516-309-00	Micro, tension arm L
S120	1-516-309-00	Micro, PM1 drive
S121	1-516-309-00	Micro, PM3 drive
S122	1-516-277-00	Push, POWER
S501	1-514-673-00	Slide, TAPE SPEED

ENCAPSULATED COMPONENTS, C-R

CP101,102	1-231-057-31	0.033 μF+120 Ω, 500 V
CP801~803	1-231-057-31	0.033 μF+120 Ω, 500 V
CP804		----------
CP805,806	1-231-057-31	0.033 μF+120 Ω, 500 V
CP901~906	1-101-534-31	0.1 μF+120 Ω, 500 V

Ref. No.	Part No.	Description
		JACKS
J101,201	1-507-376-00	Phone, MIC
J301	1-507-414-00	Binaural, HEADPHONE
CN901	1-509-482-00	Socket, voltage selector
CNJ101,201 CNJ102,202	1-507-349-00	2P PHONE LINE IN/LINE OUT
CNJ301	1-509-359-00	Connector, REC/PB (AEP, UK)
CNJ901	1-509-546-00	Connector, 3P AC IN (AEP,UK)
	1-509-341-00	Connector, AC Outlet (USA)
		MISCELLANEOUS
EH	8-825-547-00	Head, erase; EF18-2902A2 (TC-756)
	8-828-522-20	Head, erase; EF85-2202 (TC-756-2)
M1	8-832-638-01	Motor, supply reel; IC-638R
M2	8-832-638-01	Motor, take-up reel; IC-638R
M3	8-832-624-24	Motor, capstan; IC-624G
ME1,2	1-520-139-21	Meter, VU
PL101~103	1-518-134-00	Lamp, 2 V 0.1A
PH	8-825-557-00	Head, playback; PF142-2202A (TC-756-2)
	8-825-636-00	Head, playback; PF142-4202 (TC-756)
PM1	1-454-074-00	Solenoid, pinch roller (L)
PM2	1-454-074-00	Solenoid, pinch roller (R)
PM3	1-454-074-00	Solenoid, brake
PM4	1-454-073-21	Solenoid, stop
RH	8-825-558-00	Head, record; RF142-2202A (TC-756-2)
	8-825-511-00	Head, record; RF140-2902 (TC-756)
RY801	1-515-127-00	Relay, fast forward/rewind
RY802	1-515-127-00	Relay, playback
RY1001 RY1002	1-515-127-00	Relay, torque circuit
F1	1-532-259-00	Fuse, 1.6AT
F2~4	1-532-078-00	Fuse, 1AT
F5	1-532-074-00	Fuse, 200 mAT
F6,7	1-532-296-00	Fuse, 1.25A
F8,9	1-532-259-00	Fuse, 1.6AT
	1-533-105-00	Holder, fuse
	1-452-072-00	Ring, magnet
	1-534-819-00	Cord, power (UK)
	1-535-506-21	Terminal, crimping
	1-536-395-00	Terminal Strip, 1L1

Ref. No.	Part No.			Description
C815	1-121-726-11	0.47	50V	elect
C816	1-105-919-12	0.033	200V	mylar
C817	1-105-821-12	0.001	50V	mylar
C818	1-107-179-11	270p	500V	silvered mica
C901	1-121-391-11	1	50V	elect
C902	1-121-004-11	220	160V	elect
C903,904	1-117-100-11	10	250V	metalized paper
C905	1-117-036-22	1.5+05	250V	metalized paper
C906~911	1-107-123-11	47p	50V	silvered mica
C1001,1002	1-131-239-61	6.8	35V	tantalum

RESISTORS

All resistors are ¼W, carbon type and in Ω unless otherwise indicated. (k = 1,000)

R101,201	1-242-687-11	3.9k	
R102,202	1-242-671-11	820	
R103,203	1-242-653-11	150	
R104,204	1-242-715-09	56k	low noise
R105,205	1-242-702-09	16k	low noise
R106,206	1-242-713-09	47k	low noise
R107,207	1-242-682-09	2.4k	low noise
R108,208	1-242-709-09	33k	low noise
R109,209	1-242-666-11	510	
R110,210	1-242-721-11	100k	
R111,211	1-242-685-11	3.3k	
R112,212	1-242-669-11	680	
R113,213	1-224-339-00	10k (A), variable	
R114,214	1-242-721-09	100k	low noise
R115,215	1-242-705-09	22k	low noise
R116,216	1-224-339-00	10k (A), variable	
R117,217	1-242-724-09	130k	low noise
R118,218	1-242-721-09	100k	low noise
R119,219	1-242-722-09	110k	low noise
R120,220 R121,221	1-242-689-11	4.7k	
R122,222	1-242-685-11	3.3k	
R123,223 R124,224	1-224-701-11	15k	
R125,225	1-222-775-00	22k, adjustable	
R126,226 R127,227	1-242-685-11	3.3k	
R128,228	1-242-687-11	3.9k	

Ref. No.	Part No.		Description
R129,229	1-242-731-09	270k	low noise
R130,230	1-242-705-09	22k	low noise
R131,231	1-242-719-09	82k	low noise
R132,232	1-242-682-11	2.4k	
R133,233	1-242-712-11	43k	
R134,234	1-242-682-11	2.4k	
R135,235	1-242-719-09	82k	low noise
R136,236	1-242-677-11	1.5k	
R137,237	1-242-661-11	330	
R301,401	1-244-717-09	6.8k	low noise
R302,402	1-244-705-09	22k	low noise
R303,403	1-242-721-09	100k	low noise
R304,404	1-244-651-11	120	
R305,405	1-244-662-11	360	
R306,406	1-244-687-09	3.9k	low noise
R307,407	1-244-675-09	1.2k	low noise
R308,408	1-244-681-09	2.2k	low noise
R309,409	1-244-723-09	120k	low noise
R310,410	1-244-686-11	3.6k	
R311,411	1-222-773-00	4.7k	
R312,412	1-244-692-09	6.2k	low noise
R313,413	1-244-699-11	12k	
R314,414		----------	
R315,415	1-244-601-11	1	
R316,416	1-244-683-11	2.7k	
R317,417	1-222-776-00	47k, adjustable	
R318,418 R319,419	1-244-685-11	3.3k	
R320,420	1-244-663-11	390	
R321,421	1-244-721-11	100k	
R322,422	1-244-725-09	150k	low noise
R323,423	1-244-698-11	11k	
R324,424	1-244-673-11	1k	
R325,425	1-244-713-11	47k	
R326,426	1-244-675-09	1.2k	low noise
R327,427	1-244-705-09	22k	low noise
R328,428	1-244-681-09	2.2k	low noise
R329,429	1-244-665-11	470	
R330,430	1-244-695-11	8.2k	
R331,431	1-244-688-11	4.3k	
R332,432	1-244-692-11	6.2k	
R333,433	1-244-705-09	22k	
R334,434	1-244-877-11	1.5k	
R335,435	1-244-685-11	3.3k	

CAPACITORS

All capacitors are in μF unless otherwise indicated. (p = μμF, elect = electrolytic)

Ref. No.	Part No.			Description
C101,201	1-131-192-11	4.7	10 V	tantalum
C102,202	1-121-392-11	3.3	25 V	elect
C103,203	1-105-821-12	0.001	50 V	mylar
C104,204	1-121-414-11	100	10 V	elect
C105,205	1-107-115-11	22p	50 V	silvered mica
C106,206	1-121-414-11	100	10 V	elect
C107,207	1-121-915-11	4.7	25 V	elect
C108,208	1-121-410-11	47	25 V	elect
C109,209	1-121-415-11	100	16 V	elect
C110,210	1-121-391-11	1	50 V	elect
C111,211	1-121-915-11	4.7	25 V	elect
C112,212	1-121-415-11	100	16 V	elect
C113,213	1-121-748-11	10	25 V	elect
C114,214	1-121-414-11	100	10 V	elect
C115,215	1-105-681-12	0.047	50 V	mylar
C116,216	1-107-127-11	68p	50 V	silvered mica
C117,217	1-121-414-11	100	10 V	elect
C118,218	1-121-398-11	10	25 V	elect
C119,219	1-107-016-11	470p	500 V	silvered mica
C301,401	1-121-422-11	220	25 V	elect
C302,402	1-121-409-11	47	16 V	elect
C303,403	1-107-131-11	100p	50 V	silvered mica
C304,404	1-121-414-11	100	10 V	elect
C305,405	1-105-661-12	0.001	50 V	mylar
C306,406	1-105-678-12	0.027	50 V	mylar
C307,407	1-107-121-11	39p	50 V	silvered mica
C308,408 C309,409	1-121-415-11	100	16 V	elect
C310,410	1-121-915-11	4.7	25 V	elect
C311,411	1-107-121-11	39p	50 V	silvered mica
C312,412	1-107-242-11	390p	50 V	silvered mica
C313,413	1-121-912-11	1	50 V	elect
C314,414	1-121-479-11	22	16 V	elect
C315,415	1-121-414-51	100	10 V	elect
C316,416	1-107-115-11	22p	50 V	silvered mica
C317,417 C318,418	1-121-398-11	10	25 V	elect
C319,419	1-121-392-11	3.3	25 V	elect
C420	1-121-398-11	10	25 V	elect
C321~324 C421~424	1-105-669-12	0.0047	50 V	mylar

Ref. No.	Part No.			Description
C501,502	1-105-513-12	0.01	50 V	mylar
C503,504	1-105-517-12	0.022	50 V	mylar
C505,506	1-105-512-12	0.0082	50 V	mylar
C507,508	1-105-515-12	0.015	50 V	mylar
C509,510	1-107-163-11	47p	500 V	silvered mica
C511	1-141-034-00	30~120p		trimmer
C512		----------		
C513,514	1-129-992-11	0.0024	630 V	polyethylene
C515	1-105-719-12	0.033	100 V	mylar
C516	1-105-712-12	0.0082	100 V	mylar
C517	1-131-217-11	2.2	35 V	tantalum
C518	1-141-034-00	30~120p		trimmer
C519		----------		
C520~523	1-105-509-12	0.0047	50 V	mylar
C601	1-121-935-11	100	25 V	elect
C602,603	1-121-398-11	10	25 V	elect
C604	1-105-661-12	0.001	50 V	mylar
C605	1-105-673-12	0.01	50 V	mylar
C606	1-105-677-12	0.022	50 V	mylar
C607	1-108-550-11	0.082	50 V	polyethylene
C608	1-121-409-11	47	16 V	elect
C609,610	1-131-197-11	3.3	16 V	tantalum
C611	1-121-900-11	4.7	250 V	elect
C701	1-105-665-12	0.0022	50 V	mylar
C702	1-102-112-11	330p	50 V	ceramic
C703	1-105-529-12	0.22	50 V	mylar
C704	1-131-215-11	1	35 V	tantalum
C705	1-131-238-11	10	35 V	tantalum
C706	1-131-217-11	2.2	35 V	tantalum
C707	1-131-219-11	4.7	35 V	tantalum
C708	1-105-725-12	0.1	100 V	mylar
C801	1-121-983-11	470	50 V	elect
C802	1-121-411-11	47	50 V	elect
C803	1-121-810-11	470	50 V	elect
C804	1-121-357-11	100	35 V	elect
C805	1-121-361-11	470	35 V	elect
C806	1-121-980-11	100	6.3 V	elect
C807	1-121-388-11	1000	35 V	elect
C808	1-121-954-11	4.7	50 V	elect
C809	1-121-651-11	10	16 V	elect
C810	1-121-980-11	100	6.3 V	elect
C811	1-121-983-11	470	50 V	elect
C812	1-121-662-11	22	35 V	elect
C813,814	1-113-072-11	1	220 V	metalized paper

SECTION 5
ELECTRICAL PARTS LIST

COMPLETE CIRCUIT BOARDS

Ref. No.	Part No.	Description
	A-2014-001-A	Bias OSC
	A-2020-002-A	Servo
	A-2023-007-A	Pause Switch
	A-2095-015-A	Torque
	A-2095-016-A	Tension Regulator
	X-3534-147-0	Playback Amp
	X-3534-148-0	Record Amp
	X-3534-149-0	System Control
	X-3534-150-0	Tension Arm (R)
	X-3534-151-0	Tension Arm (L)
	X-3534-152-0	MONITOR Switch
	X-3534-153-0	Function Switch

CIRCUIT BOARDS

Ref. No.	Part No.	Description
	1-582-134-11	FG Coil
	1-582-594-00	Head
	1-582-864-00	Terminal

SEMICONDUCTORS

Ref. No.	Part No.	Description	
Q101,201		Transistor	2SC631A
Q102,202		Transistor	2SC1362
Q103,203		Transistor	2SC631A
Q104,204		Transistor	2SC634A
Q105,205		Transistor	2SC634A
Q106,206		Transistor	2SC634A
Q301,401		FET	2SK43
Q302,402		Transistor	2SC1362
Q303,403		Transistor	2SC634A
Q304,404		Transistor	2SC634A
Q305,405		Transistor	2SC634A
Q306,406		Transistor	2SC634A
Q307,407		Transistor	2SC634A
Q501,502		Transistor	2SC634A
Q701~713		Transistor	2SC634A
Q714		Transistor	2SC1384
Q801~811		Transistor	2SC634A
Q812		Transistor	2SC1124
Q901,902		Transistor	2SD291
Q903,904		Transistor	2SC867
Q1001,1002		Transistor	2SC634A
D301,401		Diode	1T22
D302,402		Diode	1T22
D303,403		Diode	1T22
D601~605		Diode	10D2
D701,702		Diode	1T40
D703		Diode	MZ-08
D704		Diode	MZ-12
D705,706		Diode	1T22
D707~710		Diode	10D2
D801,802		Diode	10D2
D803		Diode	MZ-08
D804,805		Diode	1T40
D806,807		Diode	10D2
D808		Diode	1T40
D809,810		Diode	1T22
D811~817		Diode	10D2
D901~904		Diode	10D2
D1001,1002		Diode	10D2
D1003~1006		Diode	1T40
IC601		Integrated Circuit	CX-032B
Th701	1-800-204-00	Thermistor	S10K

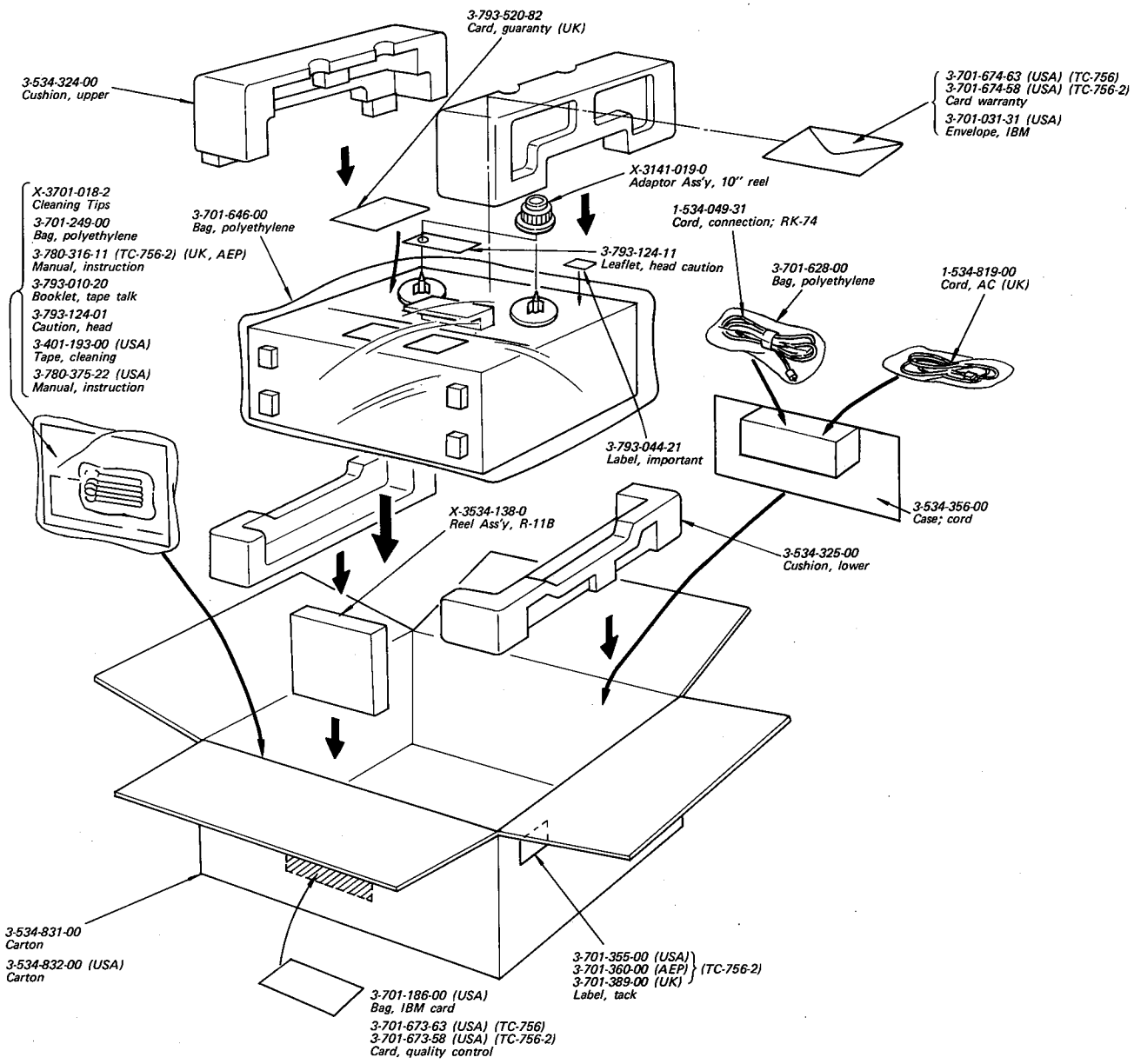
COILS

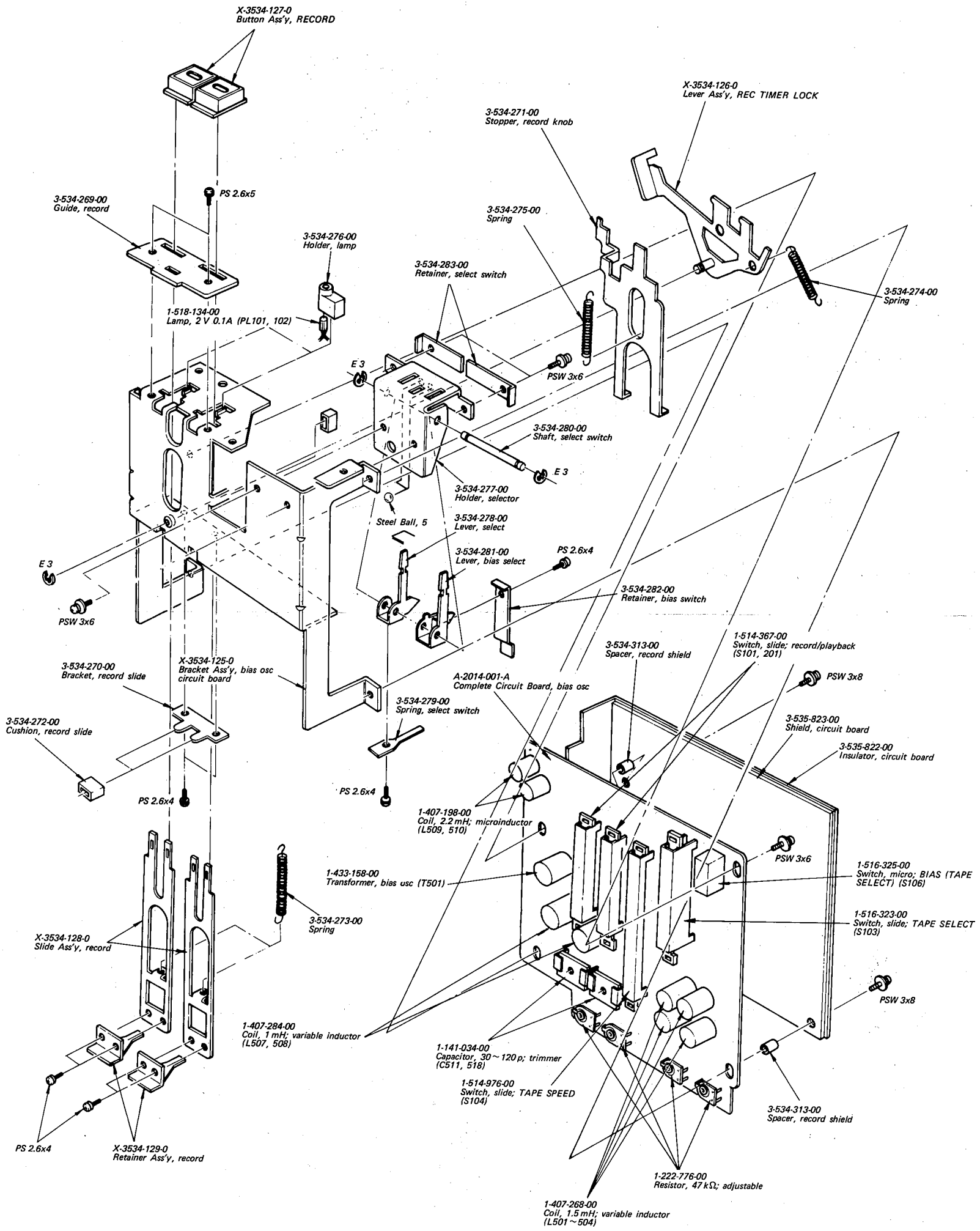
Ref. No.	Part No.	Description
L101,201	1-407-519-00	8 μH, inductor
L102,202	1-407-286-00	2.2 mH, variable inductor
L301,401	1-407-593-00	27 mH, microinductor
L501~504	1-407-268-00	1.5 mH, variable inductor
L507,508	1-407-284-00	1 mH, variable inductor
L509,510	1-407-198-00	2.2 mH, microinductor

TRANSFORMERS

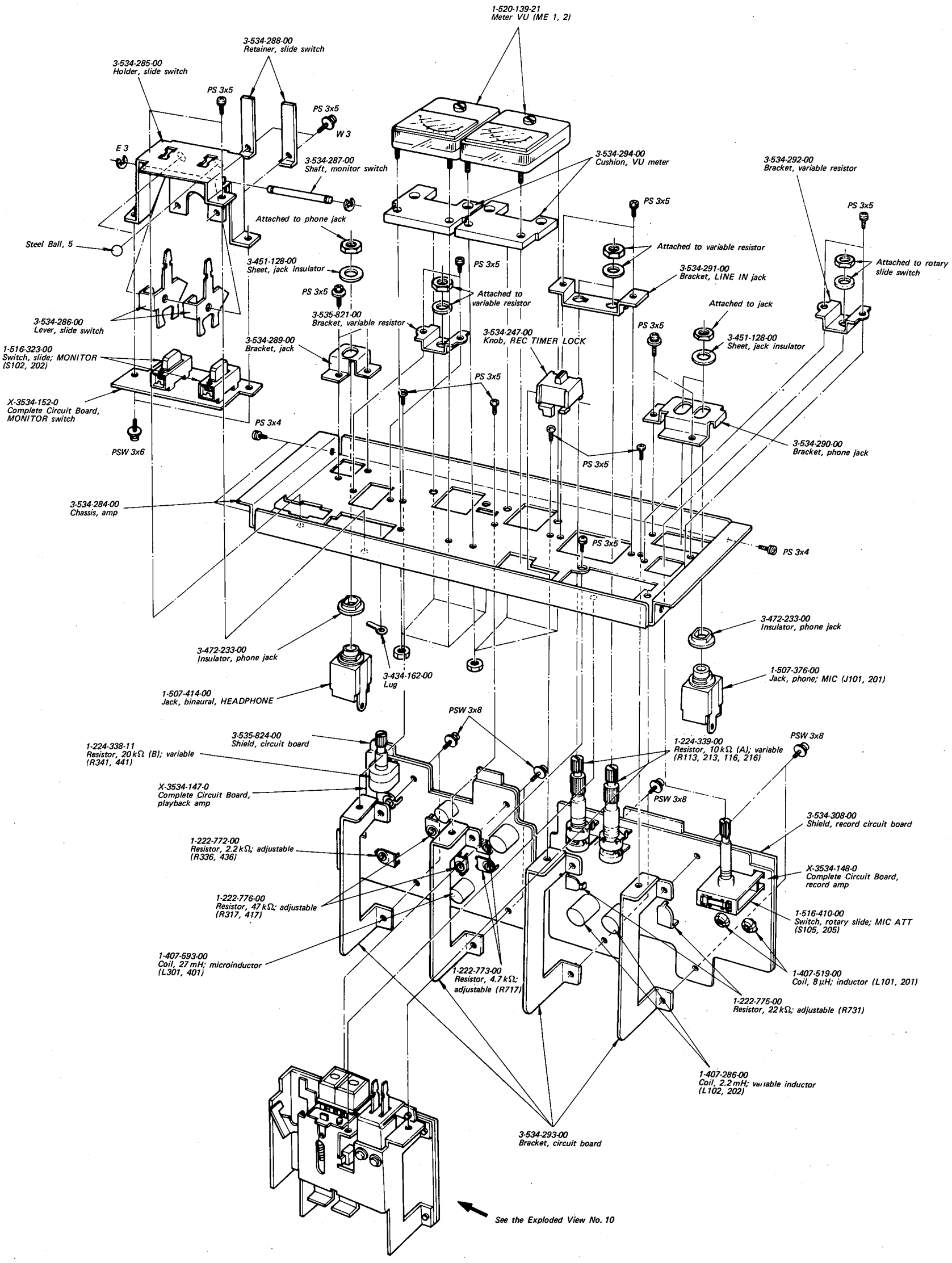
Ref. No.	Part No.	Description
T1	1-442-192-00	Power
T2	1-442-197-00	Power
T301,401	1-427-299-00	Headphone
T501	1-433-158-00	Bias Osc

4-11. PACKING

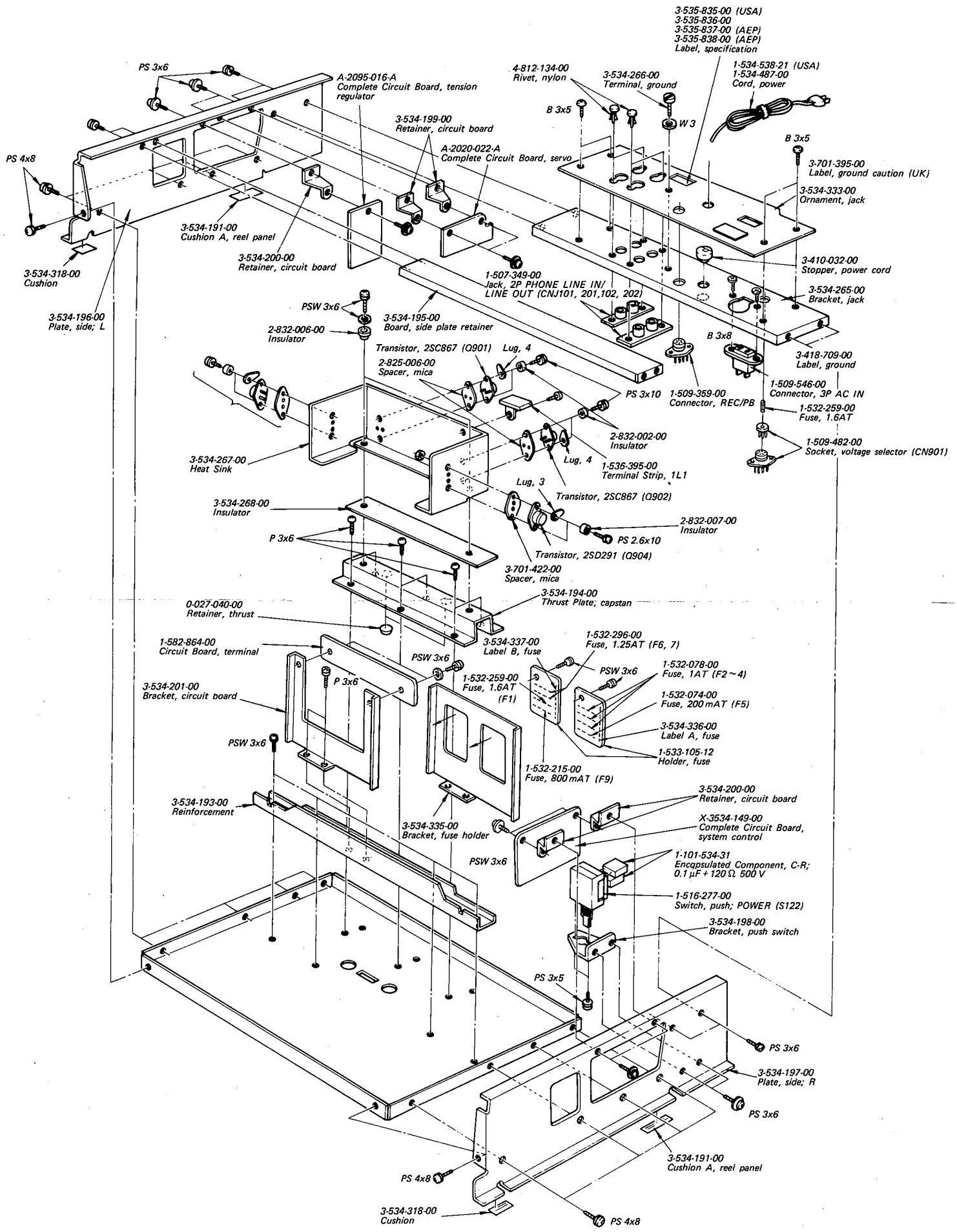

3-793-520-82
Card, guaranty (UK)
3-534-324-00
Cushion, upper
3-701-674-63 (USA) (TC-756)
3-701-674-58 (USA) (TC-756-2)
Card warranty
3-701-031-31 (USA)
Envelope, IBM
X-3141-019-0
Adaptor Ass'y, 10" reel
X-3701-018-2
Cleaning Tips
3-701-249-00
Bag, polyethylene
3-780-316-11 (TC-756-2) (UK, AEP)
Manual, instruction
3-793-010-20
Booklet, tape talk
3-793-124-01
Caution, head
3-401-193-00 (USA)
Tape, cleaning
3-780-375-22 (USA)
Manual, instruction
3-701-646-00
Bag, polyethylene
1-534-049-31
Cord, connection; RK-74
3-793-124-11
Leaflet, head caution
3-701-628-00
Bag, polyethylene
1-534-819-00
Cord, AC (UK)
3-793-044-21
Label, important
3-534-356-00
Case; cord
X-3534-138-0
Reel Ass'y, R-11B
3-534-325-00
Cushion, lower
3-534-831-00
Carton
3-534-832-00 (USA)
Carton
3-701-355-00 (USA)
3-701-360-00 (AEP)
3-701-389-00 (UK)
(TC-756-2)
Label, tack
3-701-186-00 (USA)
Bag, IBM card
3-701-673-63 (USA) (TC-756)
3-701-673-58 (USA) (TC-756-2)
Card, quality control



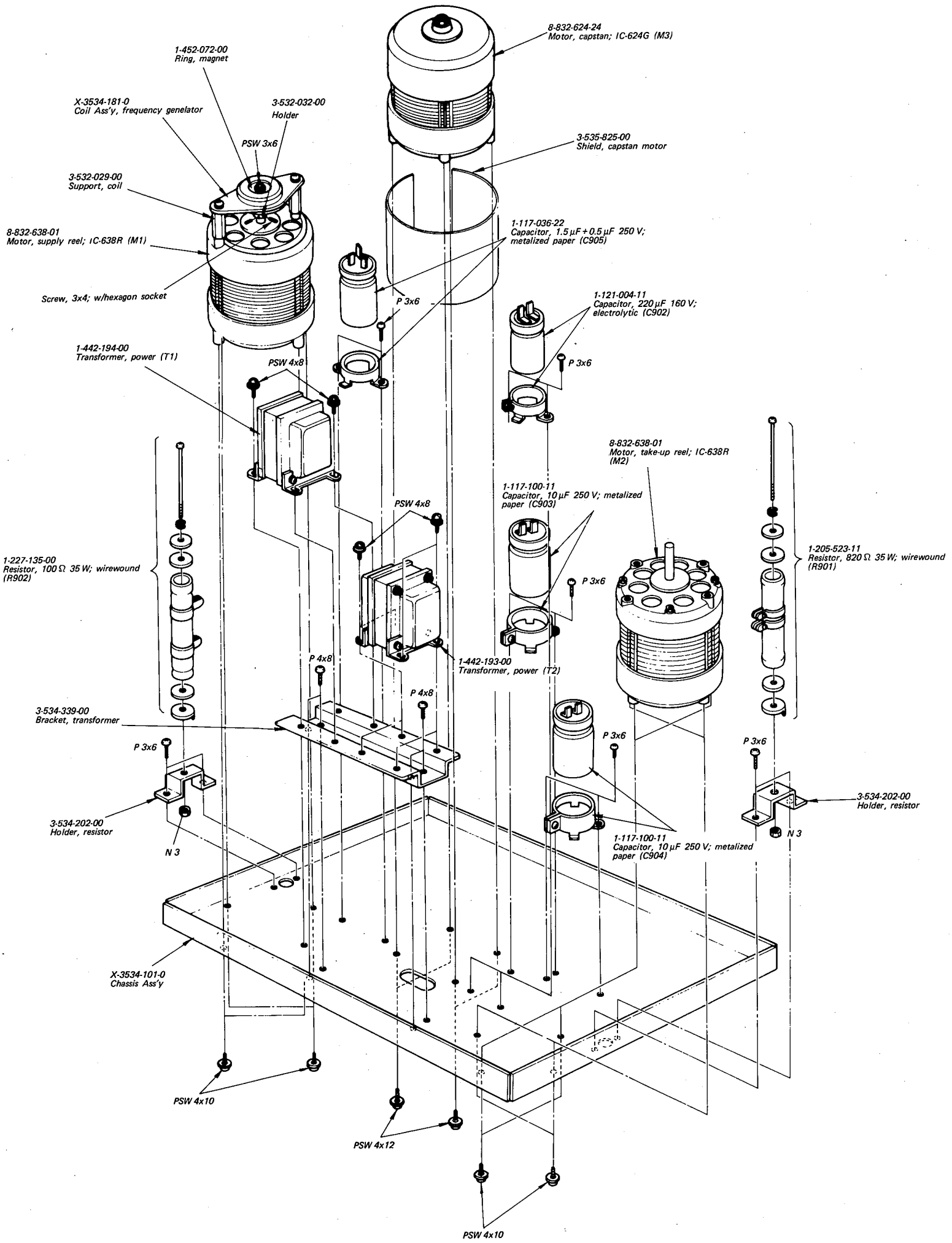
Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
(-): slotted head



Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
(-): slotted head

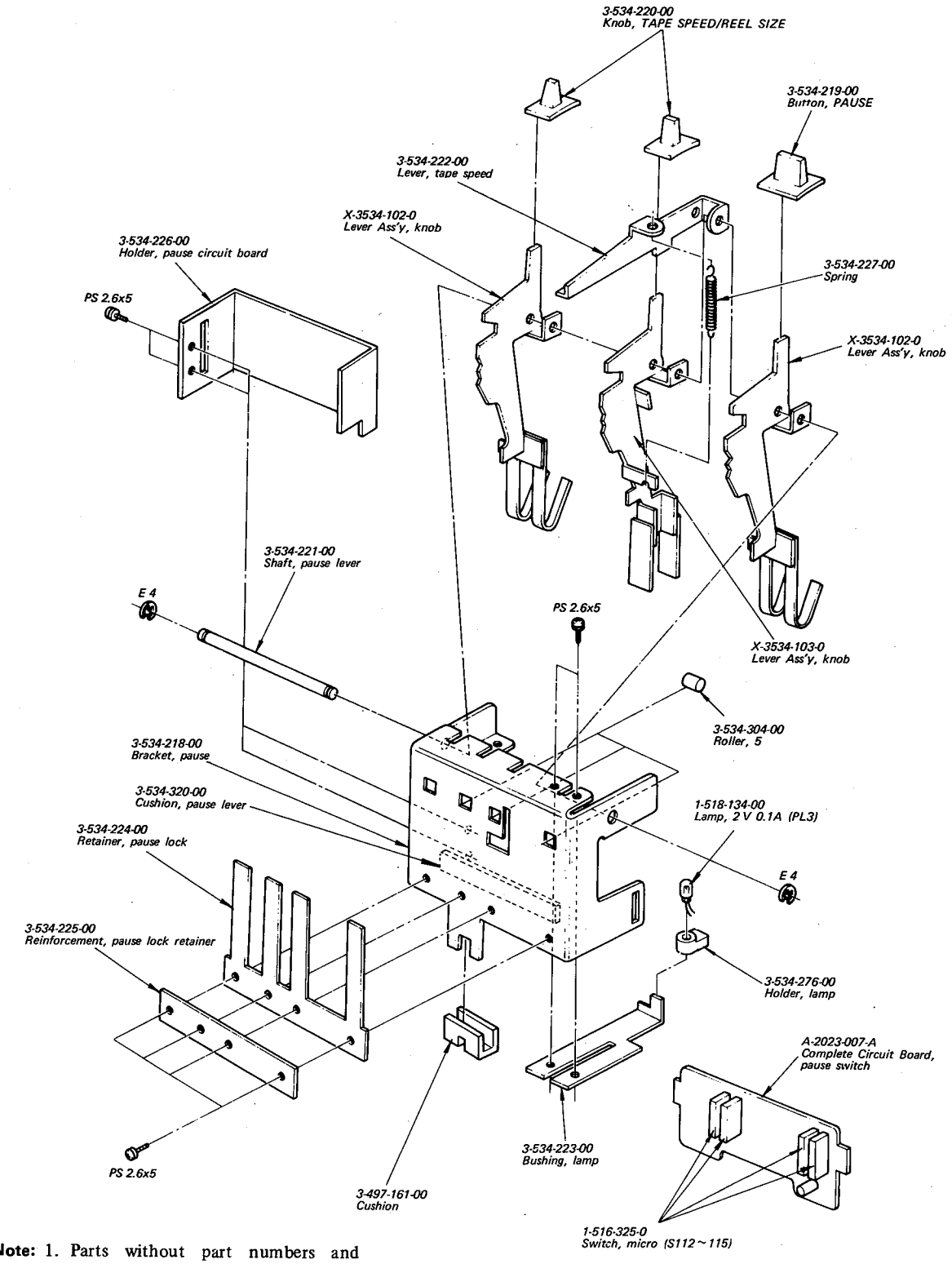


Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
(–): slotted head



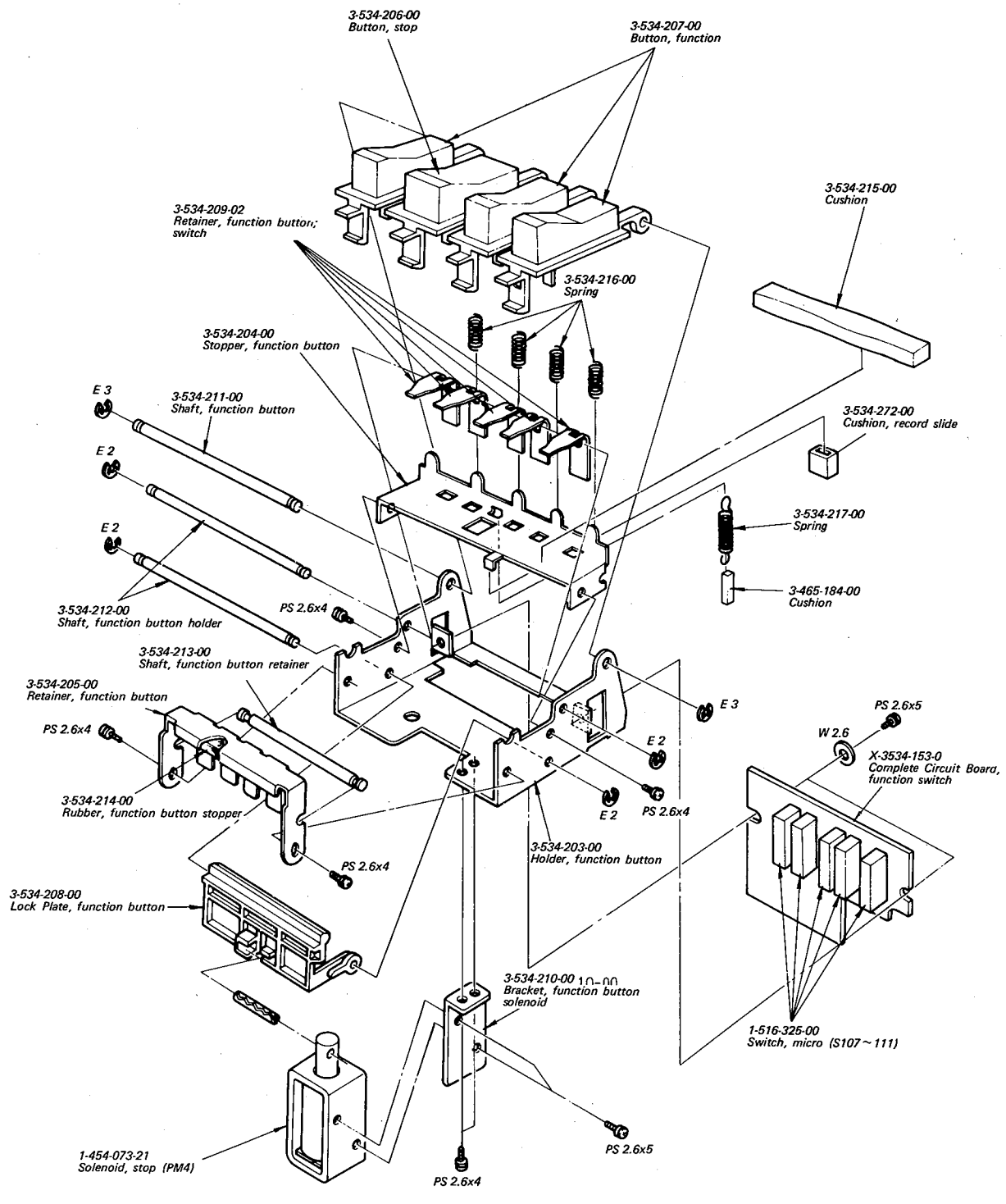
Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
(–): slotted head

4-5. EXPLODED VIEW (5)

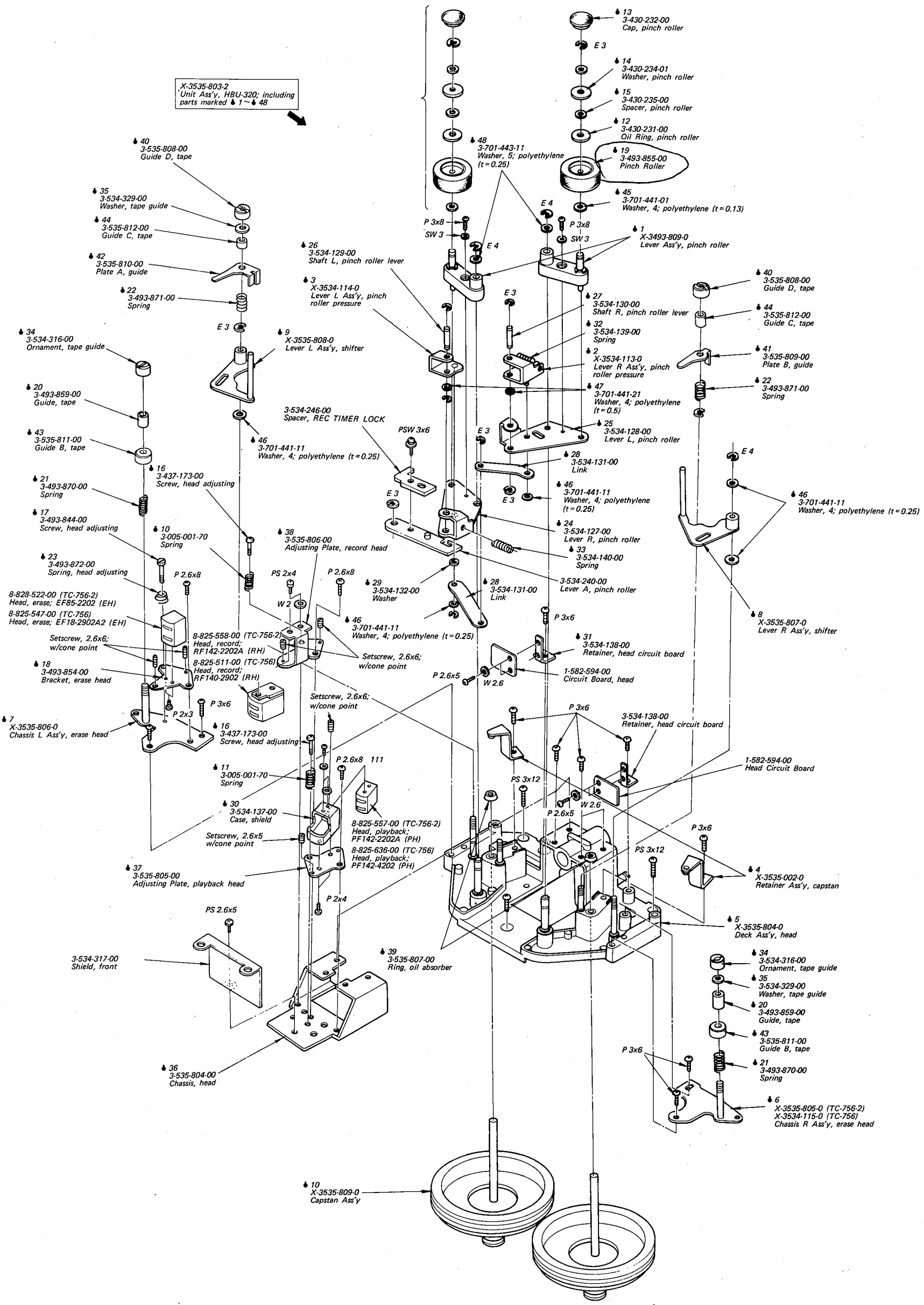


Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
(–): slotted head

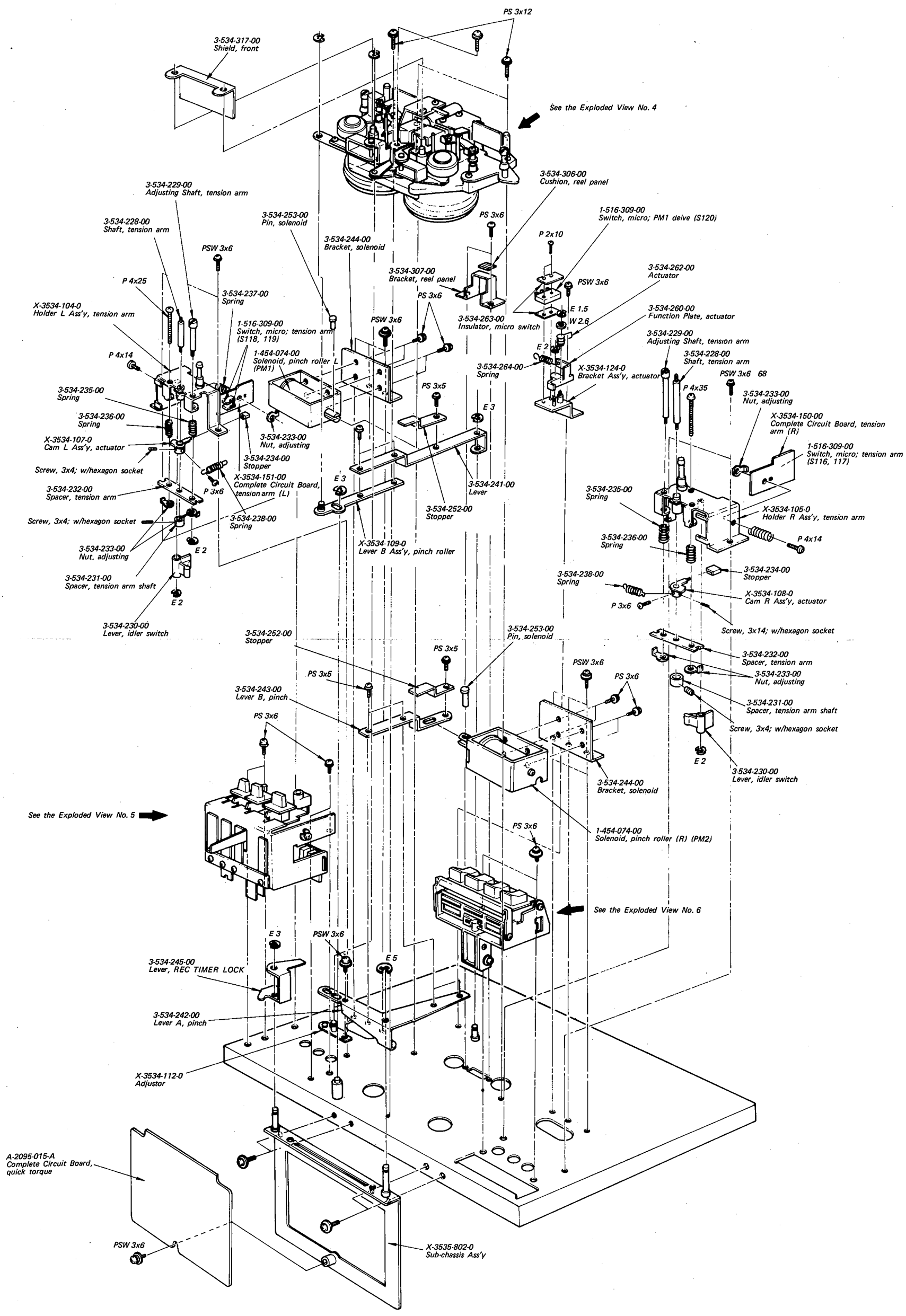
4-6. EXPLODED VIEW (6)



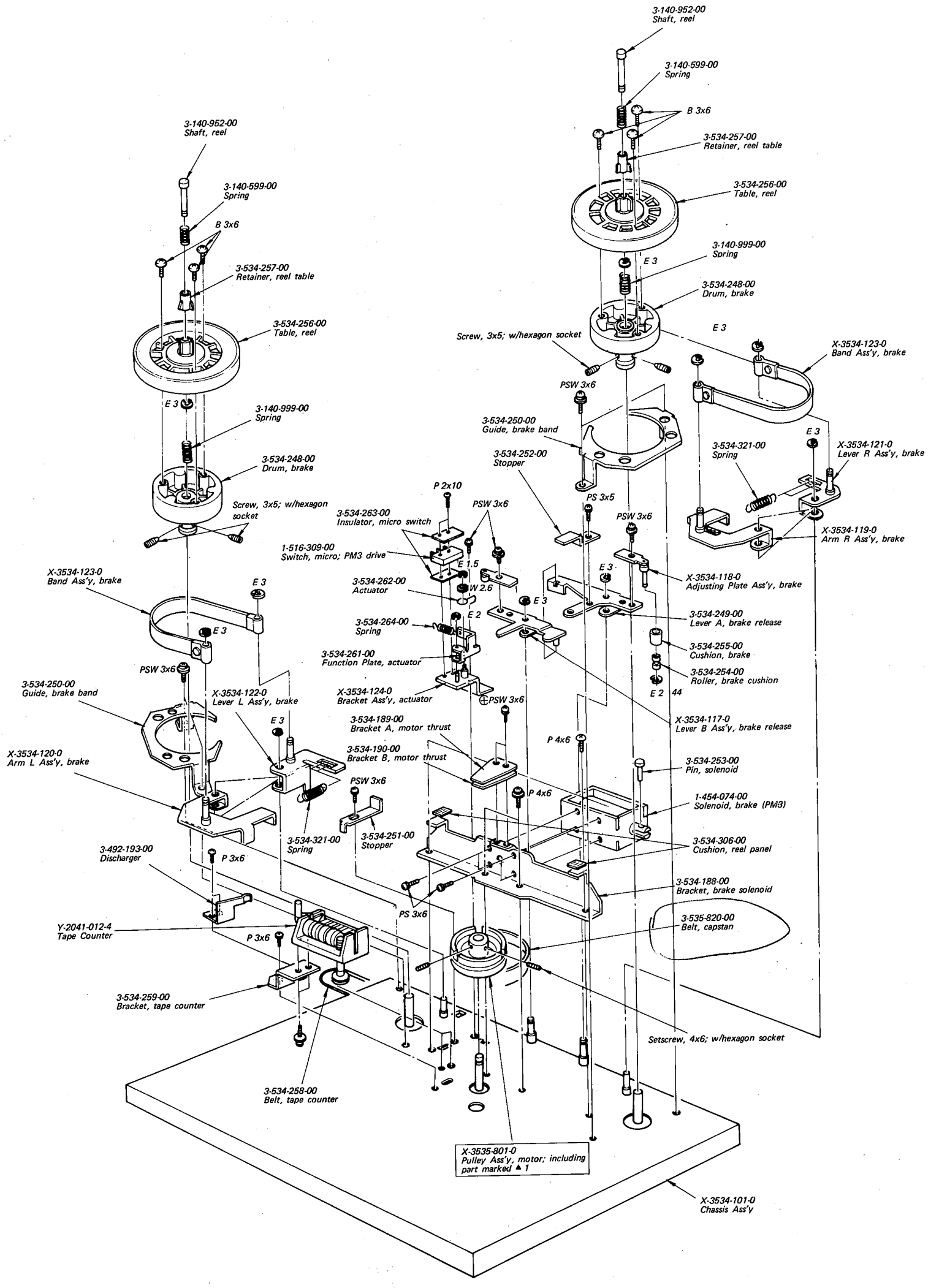
Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
(–): slotted head


X-3535-803-2
Unit Ass'y, HBU-320; including parts marked ♦ 1 ~ ♦ 48
♦ 40 3-535-808-00 Guide D, tape
♦ 35 3-534-329-00 Washer, tape guide
♦ 44 3-535-812-00 Guide C, tape
♦ 42 3-535-810-00 Plate A, guide
♦ 22 3-493-871-00 Spring
♦ 34 3-534-316-00 Ornament, tape guide
♦ 20 3-493-859-00 Guide, tape
♦ 43 3-535-811-00 Guide B, tape
♦ 16 3-437-173-00 Screw, head adjusting
♦ 21 3-493-870-00 Spring
♦ 17 3-493-844-00 Screw, head adjusting
♦ 10 3-005-001-70 Spring
♦ 23 3-493-872-00 Spring, head adjusting
8-828-522-00 (TC-756-2) Head, erase; EF85-2202 (EH)
8-825-547-00 (TC-756) Head, erase; EF18-2902A2 (EH)
Setscrew, 2.6x6; w/cone point
♦ 18 3-493-854-00 Bracket, erase head
♦ 7 X-3535-806-0 Chassis L Ass'y, erase head
P 2.6x8
P 2x3
P 3x6
♦ 46 3-701-441-11 Washer, 4; polyethylene (t = 0.25)
3-534-246-00 Spacer, REC TIMER LOCK
♦ 38 3-535-806-00 Adjusting Plate, record head
PS 2x4
W 2
8-825-558-00 (TC-756-2) Head, record; RF142-2202A (RH)
8-825-511-00 (TC-756) Head, record; RF140-2902 (RH)
Setscrew, 2.6x6; w/cone point
♦ 11 3-005-001-70 Spring
♦ 30 3-534-137-00 Case, shield
Setscrew, 2.6x5 w/cone point
♦ 37 3-535-805-00 Adjusting Plate, playback head
P 2.6x8 111
8-825-557-00 (TC-756-2) Head, playback; PF142-2202A (PH)
8-825-636-00 (TC-756) Head, playback; PF142-4202 (PH)
P 2x4
PS 2.6x5
3-534-317-00 Shield, front
♦ 36 3-535-804-00 Chassis, head
♦ 13 3-430-232-00 Cap, pinch roller
E 3
♦ 14 3-430-234-01 Washer, pinch roller
♦ 15 3-430-235-00 Spacer, pinch roller
♦ 12 3-430-231-00 Oil Ring, pinch roller
♦ 19 3-493-855-00 Pinch Roller
♦ 48 3-701-443-11 Washer, 5; polyethylene (t = 0.25)
♦ 45 3-701-441-01 Washer, 4; polyethylene (t = 0.13)
E 4
P 3x8
SW 3
♦ 1 X-3493-809-0 Lever Ass'y, pinch roller
♦ 26 3-534-129-00 Shaft L, pinch roller lever
♦ 3 X-3534-114-0 Lever L Ass'y, pinch roller pressure
♦ 9 X-3535-808-0 Lever L Ass'y, shifter
♦ 27 3-534-130-00 Shaft R, pinch roller lever
♦ 32 3-534-139-00 Spring
♦ 2 X-3534-113-0 Lever R Ass'y, pinch roller pressure
♦ 47 3-701-441-21 Washer, 4; polyethylene (t = 0.5)
♦ 25 3-534-128-00 Lever L, pinch roller
PSW 3x6
♦ 28 3-534-131-00 Link
♦ 46 3-701-441-11 Washer, 4; polyethylene (t = 0.25)
♦ 24 3-534-127-00 Lever R, pinch roller
♦ 33 3-534-140-00 Spring
3-534-240-00 Lever A, pinch roller
♦ 29 3-534-132-00 Washer
♦ 28 3-534-131-00 Link
♦ 46 3-701-441-11 Washer, 4; polyethylene (t = 0.25)
P 3x6
♦ 31 3-534-138-00 Retainer, head circuit board
1-582-594-00 Circuit Board, head
P 2.6x5
W 2.6
Setscrew, 2.6x6; w/cone point
P 3x6
3-534-138-00 Retainer, head circuit board
1-582-594-00 Head Circuit Board
PS 3x12
W 2.6
P 2.6x5
P 3x6
PS 3x12
♦ 4 X-3535-002-0 Retainer Ass'y, capstan
♦ 5 X-3535-804-0 Deck Ass'y, head
♦ 39 3-535-807-00 Ring, oil absorber
♦ 40 3-535-808-00 Guide D, tape
♦ 44 3-535-812-00 Guide C, tape
♦ 41 3-535-809-00 Plate B, guide
♦ 22 3-493-871-00 Spring
E 4
♦ 46 3-701-441-11 Washer, 4; polyethylene (t = 0.25)
♦ 8 X-3535-807-0 Lever R Ass'y, shifter
♦ 34 3-534-316-00 Ornament, tape guide
♦ 35 3-534-329-00 Washer, tape guide
♦ 20 3-493-859-00 Guide, tape
♦ 43 3-535-811-00 Guide B, tape
♦ 21 3-493-870-00 Spring
P 3x6
♦ 6 X-3535-805-0 (TC-756-2) X-3534-115-0 (TC-756) Chassis R Ass'y, erase head
♦ 10 X-3535-809-0 Capstan Ass'y

Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
(–): slotted head



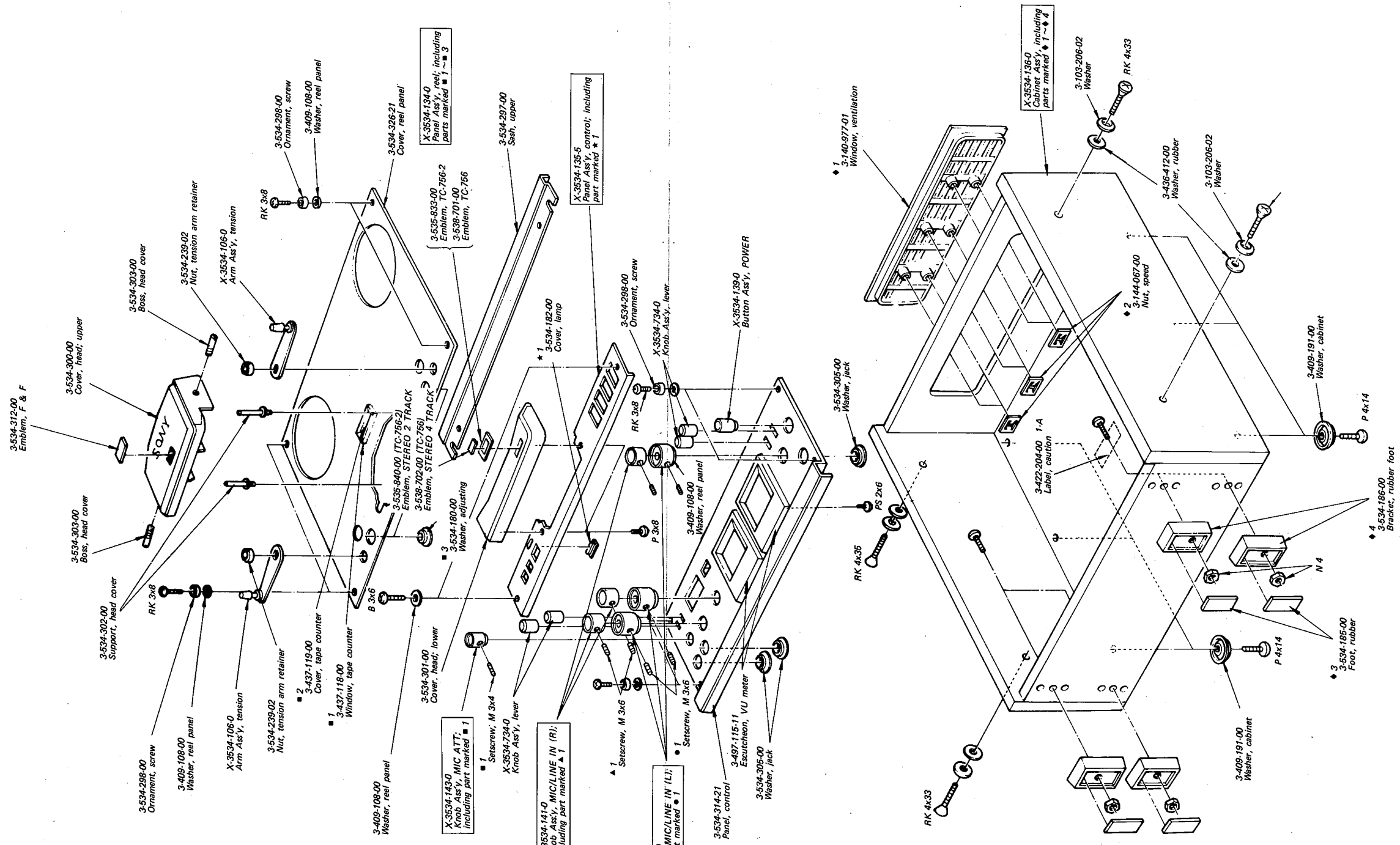
Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
(-): slotted head



Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
(–): slotted head

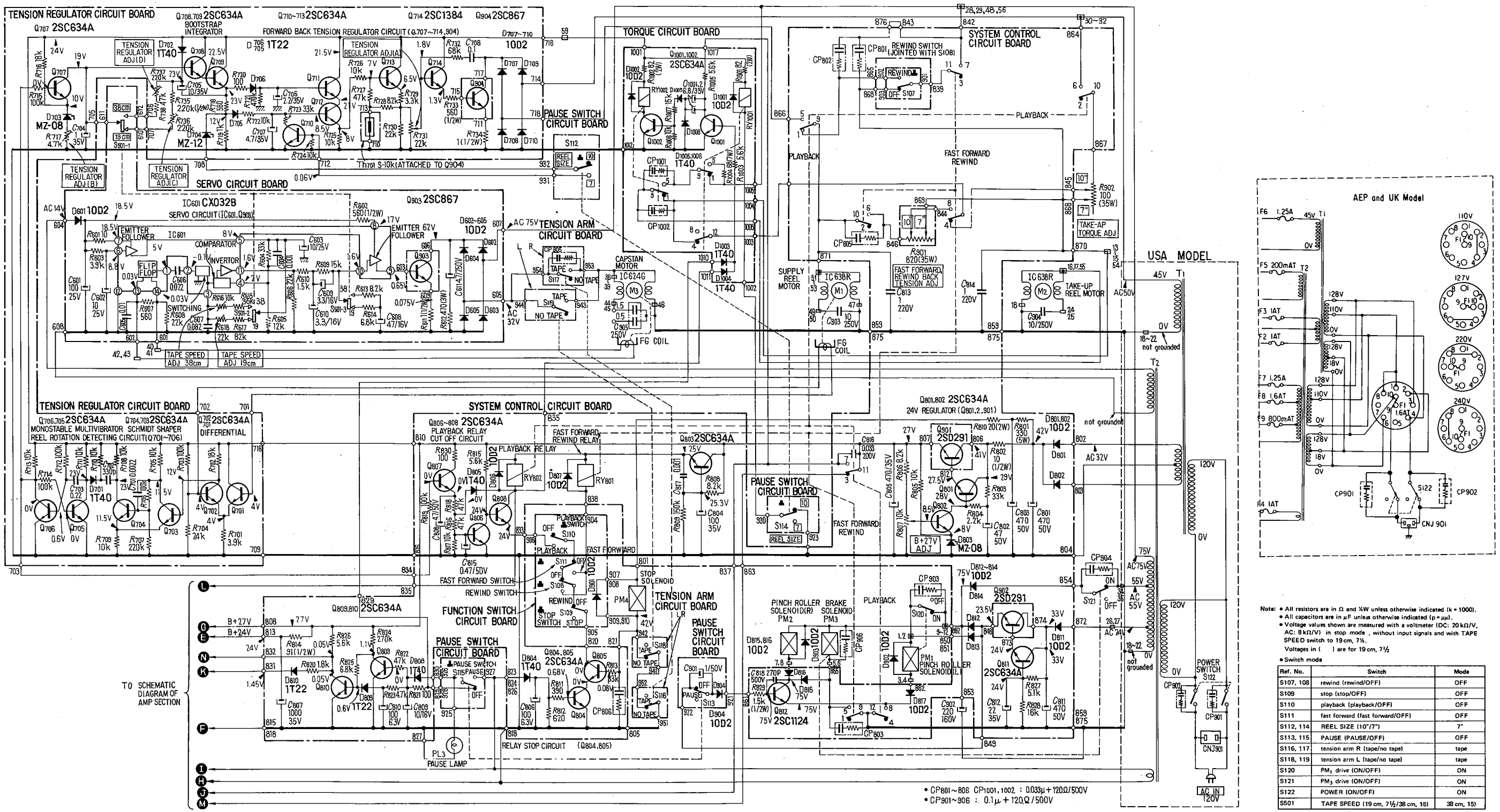
SECTION 4
EXPLODED VIEW AND PACKING

4-1. EXPLODED VIEW (1)


3-534-312-00 Emblem, F & F
3-534-300-00 Cover, head; upper
3-534-303-00 Boss, head cover
3-534-239-02 Nut, tension arm retainer
X-3534-106-0 Arm Ass'y, tension
RK 3x8
3-534-298-00 Ornament, screw
3-409-108-00 Washer, reel panel
3-534-326-21 Cover, reel panel
X-3534-134-0 Panel Ass'y, reel; including parts marked ■ 1 ~ ■ 3
3-535-833-00 Emblem, TC-756-2
3-538-701-00 Emblem, TC-756
3-534-297-00 Sash, upper
X-3534-135-5 Panel Ass'y, control; including part marked ★ 1
★ 1 3-534-182-00 Cover, lamp
3-534-298-00 Ornament, screw
X-3534-734-0 Knob Ass'y, lever
RK 3x8
X-3534-139-0 Button Ass'y, POWER
3-534-302-00 Support, head cover
RK 3x8
3-534-298-00 Ornament, screw
3-409-108-00 Washer, reel panel
X-3534-106-0 Arm Ass'y, tension
3-534-239-02 Nut, tension arm retainer
■ 2 3-437-119-00 Cover, tape counter
■ 1 3-437-118-00 Window, tape counter
B 3x6
3-409-108-00 Washer, reel panel
3-535-840-00 (TC-756-2) Emblem, STEREO 2 TRACK
3-538-702-00 (TC-756) Emblem, STEREO 4 TRACK
■ 3 3-534-180-00 Washer, adjusting
3-534-301-00 Cover, head; lower
X-3534-143-0 Knob Ass'y, MIC ATT; including part marked ■ 1
■ 1 Setscrew, M 3x4
X-3534-734-0 Knob Ass'y, lever
X-3534-141-0 Knob Ass'y, MIC/LINE IN (R); including part marked ▲ 1
▲ 1 Setscrew, M 3x6
X-3534-142-0 Knob Ass'y, MIC/LINE IN (L); including part marked ● 1
● 1 Setscrew, M 3x6
3-534-314-21 Panel, control
3-497-115-11 Escutcheon, VU meter
3-534-305-00 Washer, jack
RK 3x8
P 3x8
3-409-108-00 Washer, reel panel
◆ 1 3-140-977-01 Window, ventilation
X-3534-136-0 Cabinet Ass'y, including parts marked ◆ 1 ~ ◆ 4
3-103-206-02 Washer
RK 4x33
3-436-412-00 Washer, rubber
3-103-206-02 Washer
◆ 2 3-144-067-00 Nut, speed
3-534-305-00 Washer, jack
PS 2x6
RK 4x35
3-422-204-00 1-A Label, caution
3-409-191-00 Washer, cabinet
P 4x14
◆ 4 3-534-186-00 Bracket, rubber foot
N 4
◆ 3 3-534-185-00 Foot, rubber
P 4x14
3-409-191-00 Washer, cabinet
RK 4x33

Note: 1. Parts without part numbers and names are not available.
2. All screws are Phillips type (cross recess type) unless otherwise indicated.
(–): slotted head

3-5. SCHEMATIC DIAGRAM – SYSTEM CONTROL SECTION –



Note:
- All resistors are in Ω and ¼W unless otherwise indicated (k = 1000).
- All capacitors are in μF unless otherwise indicated (p = μμ).
- Voltage values shown are measured with a voltmeter (DC: 20 kΩ/V, AC: 8 kΩ/V) in stop mode , without input signals and with TAPE SPEED switch to 19 cm, 7½.
  Voltages in ( ) are for 19 cm, 7½
- Switch mode

Ref. No.	Switch	Mode
S107, 108	rewind (rewind/OFF)	OFF
S109	stop (stop/OFF)	OFF
S110	playback (playback/OFF)	OFF
S111	fast forward (fast forward/OFF)	OFF
S112, 114	REEL SIZE (10"/7")	7"
S113, 115	PAUSE (PAUSE/OFF)	OFF
S116, 117	tension arm R (tape/no tape)	tape
S118, 119	tension arm L (tape/no tape)	tape
S120	PM_1 drive (ON/OFF)	ON
S121	PM_3 drive (ON/OFF)	ON
S122	POWER (ON/OFF)	ON
S501	TAPE SPEED (19 cm, 7½/38 cm, 15)	38 cm, 15)

- CP601~806 CP1001, 1002 : 0.033μ + 120Ω/500V
- CP901~906 : 0.1μ + 120Ω/500V